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An Exploration of the Impact of Smartphone Use on the Mental Wellbeing of Young Adults in the UK

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Portfolio submitted in the fulfilment of the requirements for the
Professional Doctorate in Counselling Psychology (DPsych)

City, University of London

Department of Psychology

July, 2024

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Acknowledgments

I would like to thank the client in the clinical case study and the participants who gave their time to take part in this study and share their experiences, which made this research possible.

I would like to thank my research supervisor, Dr Julianna Challenor, who helped me to navigate this challenging research process, providing continuous support, knowledge and guidance, for which I am extremely grateful.

I am deeply thankful to my parents who have always been there for me and supported me throughout this process.

I am enormously thankful to my partner Micle, her kindness, patience and support kept me going throughout the doctorate. Finally, I would like to thank my friends for their constant support, especially, Jamie, Jacques and Yas for their encouragement and positivity, and to Gianluca who travelled many times to come and study with me, keeping me company and keeping me motivated. You all helped me more than you know.

Declaration

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Section A: Preface

This DPpsych portfolio is comprised of three components: A primary research study on smartphone use and mental wellbeing, a smaller publishable piece, consisting of some of the key findings from the primary study, and a clinical case study. Although all separate pieces of work, they are connected through a shared theme - the significance and impact of personal awareness on mental-wellbeing and therapeutic process. This preface provides an introductory description of the three components, before concluding with my own reflections on how the theme of awareness is central to all parts of the portfolio, the research process and my own experience of becoming a counselling psychologist.

The first component of this portfolio is a qualitative research study aiming to explore how young adults in the UK experience and make sense of the impact of smartphone use on their wellbeing. I initially became interested in this project after starting to recognise my own smartphone and social media use was impacting my wellbeing; additionally, I started to see a slow but steady increase in news articles on the negative impacts of smartphone use on mental-wellbeing. Moreover, a younger family member who I feel very close to, disclosed to me they felt they were “on the way to developing an eating disorder” due to continually comparing their appearance to idealised beauty standards on social media. I started to get a sense this was a (potential) growing public-health concern, particularly amongst younger generations, which needed further enquiry.

When beginning my own research on the subject I was shocked to see that the average UK adult spent 4-hours/day on their smartphone in 2021, when considering young adults (18-25yrs) in 2024, this is estimated to be closer to 6-8 hours a day (Statista, 2021). A study by Sohn et al. (2021) researching over 1000 British students, found around 40% of the sample were ‘addicted’ to their smartphones, according to the Smartphone Addiction Scale (SAS) (Kwon et al., 2013); prevalence of addiction was highest amongst the youngest participants. Furthermore, I became aware of an increasing body of research linking smartphone use to various forms of psychopathology, including depression (Liu et al., 2017), anxiety (Firat et al., 2018) and stress (Venkatesh et al., 2019). This initial look at the research heightened my curiosity of the topic and cemented my commitment to further investigating these issues.

I felt more research was needed concerning the attitudes, opinions and experiences of young people themselves, specifically in relation to mental-wellbeing, who not only bore the brunt of the impacts of this new technology but who also understood its intricacies, culture and nuanced effects. Almost all research on the subject was quantitative, most commonly highlighting associations between increased smartphone use and various psychopathological correlates (Elhai et al., 2017). There seemed to be little attention given to young people's experiences, thoughts and feelings on the subject, particularly in relation to their mental wellbeing (Griffioen et al., 2021). The intention of this study was to address this gap in the literature, hoping to contextualise pre-existing quantitative findings, and provide clinical and/or theoretical insight. The study sought to answer the question: "How do young adults in the UK experience and make sense of the impact of smartphone use on their mental-wellbeing?"

Data was gathered from six participants using semi-structured interviews and analysed using interpretative phenomenological analysis. Five main themes emerged from the data: 1. 'Smartphones are complex: You can't separate the good from the bad', 2. 'The impact of visual media and lack of context in a constructed reality: Social comparison, insecurities, and identity development', 3. 'Revolutionising communication and relationships', 4. 'The positives of smartphone use', 5. 'The role of user awareness on the relationship between smartphone use and wellbeing'. The clinical and future research implications of findings are considered in the discussion section as well as their relevance to the counselling psychology discipline.

The second component of the portfolio consists of a publishable article to be submitted to an academic journal. I chose one of the main findings from the primary research piece as the focus of the article, namely, 'The role of user awareness on the relationship between smartphone use and wellbeing'. I selected this as the focus as I had not seen it addressed previously in the literature, the importance participants place upon it and due to its potential clinical and future research implications. The role of awareness was an overarching theme in the research connected to all other themes. The other themes were comprised of either positive or negative effects of smartphone use on participant wellbeing, and the extent of these effects was mediated by participant awareness i.e., recognising what aspects of smartphone use were beneficial or harmful, then modifying use patterns accordingly. However, participants felt developing awareness was a confusing and difficult process, particularly when first encountering smartphones at an early-age. Many struggled to understand and manage the complex relationship between their smartphone use and wellbeing, finding damaging behaviours were normalised and feeling they received little-no guidance on these issues. Many

participants felt some form of external education on the subject was necessary to bolster their awareness, protecting them from harm and promoting healthy use of smartphones. I decided to submit the publishable article to the Journal of Youth Studies, as its aims and scope relate specifically to the empirical and theoretical exploration of the experiences and life contexts of young people, such as the impacts of rapidly changing social circumstances/environment. These aims not only interested me on a personal level but are relevant to this research subject. Moreover, the journal is directed towards the social sciences and has an interest in critical psychological perspectives.

The third component of this research is a clinical piece of work I conducted during placement with a client using person centred therapy (PCT). This particular piece of work developed my thinking around the role and purpose of formulation in PCT and had a powerful impact on my developing identity as a counselling psychologist and simply how I want to be with clients in the therapy room, regardless of therapeutic modality.

This piece of work too, focussed on the theme of awareness, or what Rogers (1957) would sometimes refer to as presence. I recognised I would try and mentally formulate my client's difficulties during our therapeutic work, considering factors from person centred theory, for instance, the impacts of my client's 'conditions of worth' during childhood on their subsequent, behaviour, thinking and affect (Rogers, 1957). However, I felt conflicted during the work, as this process of mentally formulating would detract from my awareness, or presence, with my client in the moment, leading to a (potentially) improved intellectual conception of their difficulties but in the process, losing vital connectivity and attunement to their emotional world and my felt sense of what was important to them. This process developed my thinking on the role of formulation in PCT, an already somewhat controversial topic (Gillon, 2012). Whilst being able to see its great value, particularly before/after a session or in supervision, I now believe that the main focus during therapy itself should be to remain as aware as possible of what the client was saying, feeling and of the processes unfolding within the therapeutic relationship.

The theme of awareness felt central to this portfolio and research process on multiple levels. Maintaining a constant awareness of the subtleties and nuances of participant speech and behaviour during interviews was essential to gain in depth, rich data for the research project, and, to withhold my own biases and assumptions from contaminating the interview process. During the analysis of the interview data for the primary research project, awareness emerged as a main theme for all participants in some form, feeling it acted as a vital protective factor for navigating the significant

harms and benefits participants experienced whilst using smartphones/social media. Due to the significance that participants placed upon awareness and its potential clinical and future research implications, I selected the role of awareness on the relationship between smartphone use and wellbeing as the focus of the publishable piece, that I would submit to the Journal of Youth Studies. Reflecting on my own use of awareness during the therapeutic process in the clinical case study helped me to understand it's vital importance during my clinic work, in terms of using formulation but also to enhance the therapeutic relationship and connect with the person in front of me. I felt this paralleled the process participants went through with their smartphones in some ways. Navigating smartphone use effectively, like navigating therapeutic processes and relationships, is deeply complex; doing so requires fine-tuned attention to subtle nuances, details and intricacies which can so easily go unnoticed unless one is able to maintain a careful and compassionate awareness of the relationship and processes unfolding before them.

Finally, awareness has been central to my development in becoming a counselling psychologist. Throughout this journey, it has been essential in helping me conduct therapy effectively but also guiding me to form my own individual identity as a counselling psychologist. During training I recognised there were so many different paths I could take, different placements, areas to specialise in and research topics to choose from. Striving to maintain a fine-tuned awareness of my own psychology was essential in guiding this complex decision making process. I tried to stay in touch with what I wanted and what felt right to me throughout this experience; I would often find myself leaning into certain paths for the wrong reasons, for example, considering placements because they seemed prestigious or because other students were interested in them. Aiming to maintain an awareness of what I found truly fulfilling was an essential guiding force, helping me to form and pursue a professional identity that felt in line with my personality, interests and values. Discussions with my supervisors and peers, keeping a regular reflective journal and mindfulness practice, were essential in developing and maintaining an awareness of my innermost motivations and feelings, enabling me to form a professional identity that aligns with who I am.

References

- Elhai, J. D., Dvorak, R. D., Levine, J. C., & Hall, B. J. (2017). Problematic smartphone use: A conceptual overview and systematic review of relations with anxiety and depression psychopathology. *Journal of Affective Disorders*, 207, 251-259.
- Gillon, E. (2012). A response to Simms (2011): Case formulation within a person-centred framework: An uncomfortable fit? Paper presented at the
- Griffioen, N., Scholten, H., Lichtwarck-Aschoff, A., Van Rooij, M., & Granic, I. (2021). Everyone does it—differently: A window into emerging adults' smartphone use. *Humanities and Social Sciences Communications*, 8(1), 1-11.
- Kwon, M., Lee, J., Won, W., Park, J., Min, J., Hahn, C., Gu, X., Choi, J., & Kim, D. (2013). Development and validation of a smartphone addiction scale (SAS). *PloS One*, 8(2), e56936.
- Liu, Q., Zhou, Z., Yang, X., Niu, G., Tian, Y., & Fan, C. (2017). Upward social comparison on social network sites and depressive symptoms: A moderated mediation model of self-esteem and optimism. *Personality and Individual Differences*, 113, 223-228.
- Rogers, C. R. (1957). The necessary and sufficient conditions of therapeutic personality change. *Journal of Consulting Psychology*, 21(2), 95.
- Sohn, S. Y., Krasnoff, L., Rees, P., Kalk, N. J., & Carter, B. (2021). The association between smartphone addiction and sleep: a UK cross-sectional study of young adults. *Frontiers in Psychiatry*, , 176.
- Statista. (2021). Smartphone ownership penetration in the United Kingdom (UK) from 2012 to 2021, by age group. Retrieved from:
<https://www.statista.com/statistics/367857/smartphone-penetration-in-the-united->

[kingdomuk/#:~:text=In%202021%2C%2094.6%20percent%20of,%2D%20to%2044%20year%20olds](#)

Venkatesh, E., Al Jemal, M. Y., & Al Samani, A. S. (2019). Smart phone usage and addiction among dental students in Saudi Arabia: a cross sectional study. *International Journal of Adolescent Medicine and Health*, 31(1)

Section B: Research study

**‘An Exploration of the Impact of Smartphone Use on the
Mental Wellbeing of Young Adults in the UK’**

Supervised by Dr Julianna Challenor

Abstract

In the UK and much of the West, rates of mental-health difficulties amongst young adults have dramatically increased in recent years, some have described this a generational crisis in mental-health (Haidt, 2024). There are many possible causes for this decline in wellbeing, one potential factor that has gathered interest amongst researchers is the rapid rise of smartphone and social media (SM) use. Recent research has shown associations between smartphone use and various forms of psychopathology (Yang et al., 2020), yet, very few studies have actually explored young adults' experiences of smartphone use and mental-wellbeing. This study aims address this gap in the literature. This study recruited six, 18-25-year-olds who felt their mental-wellbeing was impacted by smartphone use. Semi-structured interviews were conducted to explore the impacts in depth, data was analysed using interpretive phenomenological analysis (IPA), producing 5 main themes. The first theme, 'Smartphones are complex: You can't separate the good from the bad' describes how difficult managing smartphone use is as the positive aspects are often inextricably linked with the negative. The second theme, 'It's the seeing it! Comparison to visual media, insecurity exacerbation and identity distress' explores the detrimental impact idealised profiles on SM and image-editing had on participant wellbeing. The third theme, 'Revolutionising communication and relationships' describes the impact of constant connectivity on participant's wellbeing and relationships. The fourth theme, 'Connection, freedom and learning: The positives of smartphone use' explores smartphone's usefulness, and ability to bond people together. The fifth theme, 'What you don't know really does hurt you' describes the importance of knowing what types of smartphone use are beneficial or harmful to wellbeing, and the difficulties involved in developing and maintaining that awareness. Findings from this study are discussed in relation to preexisting theory and research. Their relevance to counselling psychology is explored as well as implications for clinical practice and future research.

1. Literature review

1.1 Introduction

In this chapter, my aim is to review the literature base on how smartphone use impacts mental-wellbeing. There is a focus on the implications of social media (SM) use as this is an aspect of smartphone use that is particularly pertinent to wellbeing, however smartphone use, as a whole, is considered as this is commonly researched as one variable. I will first provide a brief section on the current state of young adult's mental-health and a brief section on smartphone/SM use, defining key-terms and providing general information. I will then review the literature concerning smartphone use and mental-health dividing it under appropriate subheadings. Finally, I will explain the aims, rationale and research question for this study. This study and literature review focuses on smartphone use within a more economically developed context, data indicates that smartphone use time, ownership and related problems are at higher prevalence in these countries (Poushter, 2016). Moreover, participants in this study are UK-based.

1.1.1 Young adults and mental well-being.

Over the past two decades there have been growing concerns over the mental-health of young adults, both in the UK and globally. Some fluctuations in mental-health over time are expected (Twenge et al., 2019), however a more consistent deterioration in the mental wellbeing of young adults and adolescents is becoming apparent. Keyes et al. (2019) reported an increase in rates of depression, anxiety and stress, as did Costello et al. (2011). More contemporary research has unfortunately shown this trend is still increasing; a longitudinal study by Smith et al. (2021) looking at 18-25yr olds has found an increase in symptomatology for depression, anxiety and distress over a 5-year period.

This deterioration in the mental health of young adults in recent times, has led many to theorise about the potential causes. This is a difficult task due to the vast changes this demographic has endured over the last two decades, popular explanations include the impact of climate anxiety, fall in living standards, home ownership, smartphones/SM and Covid-19. A large scale global survey (Hickman et al., 2021) on the thoughts and feelings of 10,000 16-25-year-olds on climate change,

revealed that the vast majority of the sample felt moderately or extremely worried about the issue with many also feeling sad, hopeless, powerless and guilty. Around 45% of the sample reported this impacting their daily functioning and increased engagement in negative thinking.

Covid-19 is also thought to be a problem that disproportionately impacts the mental wellbeing of young people. A systematic review of the literature by Kauhanen et al. (2023) reported that most studies they reviewed found longitudinal increases in depression, anxiety and loneliness over the course of the pandemic. The isolation that the pandemic caused may have important social and developmental implications for young people, missing large periods of school and university life. Kauhanen et al. (2023) strongly recommend further research on the developmental implications of the pandemic.

A qualitative study by Williams and Dienes (2022) found that the cost of living crisis was likely affecting the emotional wellbeing of young people in the UK, particularly those from more deprived communities. They found, uncertainty about the future, worrying about others and a loss of control were key themes participant's felt were impacting mental-wellbeing.

Social Psychologist, Jonathan Haidt (2024), argues that the deterioration in young people's mental health is likely a combination of the aforementioned factors, but after a comprehensive analysis of the data, found that Smartphone use/SM correlate best with the rise in mental-health problems. He notices distinct rises in incidences of psychopathology a year or so after smartphones came out and again in the years following Instagram's development, circa 2011/12. He argues that other factors, like Covid-19, can be recognised in the data but these account for significantly smaller effects. Whilst one cannot infer causation, it certainly strengthens the probability that smartphone/SM use are likely, at least partially, responsible factors that warrant further investigation. The research relating to the impact of smartphones and SM on mental health is discussed in the literature review.

1.1.2 Smartphones and Social Media use

Contemporary smartphones debuted in 2007 and exploded in popularity ever since, ownership amongst young adults in the UK was over 95% in 2021 and is now likely to be over 99% (Statista, 2021). Smartphone ownership is most prevalent in more economically developed areas, like Europe, USA, Japan, South Korea, Singapore, Israel and Australia, though ownership in less economically developed countries is rising rapidly (Statista, 2021).

Smartphone use can be defined as any engagement one has with a smartphone, this commonly includes internet use and utilisation of a vast array of applications. Social, entertainment and productivity functions are most commonly used which include social media (SM), news, games, shopping, navigation, banking, instant messaging and phone calls (Rosen et al., 2013). This new technology has revolutionised how we interact with the world, our peers and how we spend our time, particularly for younger people.

For young adults, the majority of time on a smartphone is spent using SM. SM can be defined as an online platform where users can create personalised profiles and interact with other users, share content and network, often using instant messaging, posts, photos and videos (Kuss and Griffiths, 2017). In the UK, some of the most common SM platforms are Instagram, WhatsApp, Facebook, Snapchat, YouTube, X (Twitter), LinkedIn and TikTok (Fernandez-Rovira et al., 2021). Although most smartphone uses are thought to have some impact on user mental health, it is the SM use that is believed to have the most profound impact (Kuss and Griffiths, 2017).

1.2 Literature review search method

Relevant studies were selected from the following databases: Google Scholar, Psych-info, PubMed and Web of Science using search terms (“problematic smartphone use” OR “smartphone addiction” OR “smartphone use” OR “social media” OR “social media use”) AND (“mental health” OR “psychological wellbeing” OR “psychopathology” OR “wellbeing” OR “mental wellbeing”). Search terms were used individually and in combination. All research reviewed is from the last 10 years (not including theoretical or relevant historical citations). The references of metanalyses/literature reviews and particularly relevant studies produced by the search were checked for further relevant articles. Overall, 294 relevant articles were found. The studies’ abstracts were read and checked for relevance leaving 116 studies. Studies that investigated the relationship between smartphone/SM use and mental health in some way were deemed relevant.

1.2.1 Smartphone use, smartphone addiction and links to psychopathology

Smartphones have revolutionised the way we live our lives, we can order a taxi to our feet, stay continuously connected to family and friends, entertain ourselves and increase productivity in countless ways (Elhai et al., 2017). Smartphone use is becoming ubiquitous across the UK and much of the western world, individuals are now spending more and more time on smartphones as they become more deeply integrated within our society and culture. In the UK the average adult spent 4-hours/day on their smartphone in 2021 while, more specifically, adolescents and young adults (18-

25yrs) are estimated to be closer to 6-8 hours a day in 2024 although there is currently no definitive data on this (Statista, 2021). With this huge change in our behaviour and how we spend our time, many public-health researchers are interested in the impact of smartphone use on wellbeing. There is debate amongst researchers concerning to what extent smartphones impact wellbeing. Some feel that the concern is unjustified, noting that there is often anxiety around new technological advancements and their impacts as was the case with the printing press and television (Kross et al., 2021). Others however feel that the unique features of smartphones pose a much greater risk, i.e. the ability of users to interact with them and share personal information, as well as smartphone's ability to interact with users using algorithms and their addictive potential (Twenge, 2017).

Some researchers have uncovered positive results, finding smartphones can help improve our connections with others, increase productivity, facilitate learning and provide entertainment (Kil et al., 2021). Despite their numerous uses and benefits, the vast majority of research focuses on the negative consequences for wellbeing (Kross et al., 2021), more commonly associated with smartphone addiction, a term often used interchangeably with problematic, excessive use. The majority of studies demonstrate there is a weak-positive correlation between increased smartphone use and poorer mental-health outcomes (Elhai et al., 2019), but some studies dispute this e.g. Kil et al. (2021) that found smartphone use was correlated with an increase in quality of life. There is a somewhat clearer pathological relationship between smartphone addiction/problematic use and mental wellbeing (Yang et al., 2020) which tends to be the focus of much research.

1.2.2 Smartphones and addiction/problematic smartphone use (PSU)

A study by Sohn et al. (2021) looked at 1043 students aged 18-30, from Kings College London. The study found around 40% of the sample were addicted to their smartphones (according to the smartphone addiction scale (SAS) scores) which was associated with poor sleep; younger participants were more likely to be addicted and spend more time on their phones. Smartphone addiction is increasingly being recognised as an international public-health concern (Liu et al., 2020), being associated with depression (Liu et al., 2017), anxiety (Firat et al., 2018), stress (Venkatesh et al., 2019), road traffic accidents (Elhai et al., 2017), poor academic performance (Lepp et al., 2014), peer victimization (Liu et al., 2020) and negative social comparison (Keyte et al., 2020). There are even detectable changes in the brain structure of people displaying PSU/addiction (Yang et al., 2020).

However, smartphone addiction is a somewhat controversial term, some researchers do not believe it constitutes a clinical addiction, it's not currently recognised by the DSM-5, even though it is

considered to have some highly addictive properties (Panova and Carbonell, 2018). Reasons given against using the term addiction are smartphone addiction severity is too low, there are validity concerns with the measures, and many different types of measures are used in research, reducing consistency. Moreover, the general understanding of smartphone use behaviours, motivations and its various sociocultural contexts are considered poorly understood (Panova and Carbonell, 2018). Thus, in lieu of further evidence it may not be wise to conceptualise smartphone addiction in the clinical sense. The next section will describe the theoretical development of smartphone addiction/PSU and supporting research.

1.2.3 Problematic Smartphone Use development and Compensatory Internet Use Theory (CIUT)

PSU can be defined similarly to a behavioural addiction, manifesting in excessive/addictive use of a smartphone, often mimicking substance-use addiction symptomology e.g., continued use despite negative consequences, reduction in self-control and craving/withdrawal symptoms (Elhai et al., 2019). It can be measured on a variety of validated continuous scales, the smartphone addiction scale being the most common (Kwon et al., 2013). The accessibility and portability of smartphones is a strong risk factor for addiction – they can be used constantly (Elhai et al., 2018).

CIUT (Kardnerfelt & Withner, 2014) attempts to explain how PSU develops, it posits that when a person is experiencing negative affect, they can experience short-term relief by using their phone as a maladaptive emotion-regulation strategy. CIUT conceptualises PSU as a regulation/avoidance mechanism for distressing emotions, this is known as a negative-reinforcement model in addiction literature (Robison & Berridge, 2003). Many studies have found empirical support for CIUT and PSU e.g. Elhai, et al. (2018); Wang, et al. (2019) and Zhitomirsky-Geffet and Blau, (2016). A positive-reinforcement model suggested by (Elhai et al 2017), known as Incentive Sensitization Theory (IST) (Robinson & Redbridge, 2003) also has empirical support (Wise & Koob, 2014). IST posits that at first, one engages with a behaviour (smartphone use) in order to get a reward e.g. enjoyment through receiving a notification, this reward is then anticipated and sought after repeatedly until the behaviour becomes compulsory (Elhai et al., 2017). Neurologically, this could be conceptualised as the dopamine reward pathway (Macit et al., 2018). Thus, it seems probable that both positive and negative reinforcement processes can be involved in PSU development. There is currently no strong conclusive evidence that PSU causes psychopathology or vice-versa as there is a dearth of experimental research, however many researchers feel a bidirectional relationship is most likely, as is the case with most addictive behaviours (Elhai et al., 2019).

1.2.4 Problematic Smartphone Use and Psychopathology

Despite the many benefits smartphones provide, recent literature's primary focus has been on PSU and its psychopathological correlates, primarily depression and anxiety (Yang et al., 2020). Both Yang et al. (2020) and Keyte et al. (2020) suggests a causal link as the rise in young adult and adolescent mental-health problems coincides neatly with the increase in popularity of smartphones and SM. However, it is important not to over-pathologise smartphones as almost all research is currently cross-sectional-correlational, thus no definitive claims can be made regarding causation. Future quantitative research could focus on further understanding the relationship between PSU and psychopathology using mediation/moderation analyses, as well as using longitudinal/experimental designs to understand causality (Elhai et al., 2018).

Kim et al. (2017, 18, 19) and Firat (2018) found a significant positive relationship between PSU and depression and Hawi & Samaha (2017) and Tao et al. (2017) found a significant positive association with anxiety. These studies however used opportunity and self-selecting samples; the non-random sampling methods leaves these studies vulnerable to systematic biases. Additionally, these studies were all based on student populations, reducing ecological validity; however, students are generally considered to be at greater risk from technology-related issues. These studies all used self-report questionnaires, although these are validated (somewhat controversially) (Kross et al., 2021) with respectable Cronbach's alpha scores, they are vulnerable to social desirability and recall biases, often resulting in underestimates of PSU (Yang et al., 2020).

In order to further understand general trends between PSU and psychopathology, the meta-analyses by Elhai et al. (2017) and Yang et al. (2020) need to be examined, in addition to individual studies. These meta-analyses focus on anxiety and depression and have the advantage of calculating effect sizes of the psychopathological correlates of PSU, this is important as it goes beyond statistical significance and gives an idea of the magnitude of effect. Elhai et al. (2017) included 23 peer reviewed studies and Yang et al. (2020) included 14. Both analyses found the strongest associations between PSU and depression, showing a moderate-weak effect and then anxiety, showing a weak effect.

These metanalyses have highlighted some sampling limitations. Firstly, there is a paucity of larger sample sizes and random sampling methodology to protect against systematic bias, although some studies have done this e.g. Lui et al. (2020). The majority of studies tend to be from China, Korea and

the USA, less economically developed countries are underrepresented, however the UK also has relatively little robust research, not a single study in either metanalysis was UK-based.

1.2.5 Smartphones, social media and mental wellbeing

Of all smartphone capabilities, SM takes up the largest proportion of young adult's use time and is thought to have the greatest impact on mental-health. For this reason, many studies focus on the impact of SM on mental health. Much like smartphone use, there has been a mixture of findings. The first studies on SM and wellbeing started coming out in the 2000s, predominantly focusing on Facebook. After 2010 many studies focused on Instagram, and as more SM platforms were developed researchers also started grouping platforms together into the single variable 'Social media use' to understand general trends. The first set of studies that came out were again predominantly cross-sectional-correlational designs and produced inconsistent findings (Kross et al., 2021). For example, a study by Grieve et al. (2013) on Australian students, found time on Facebook improved wellbeing through socially connecting with peers. Yet a study on UK students found negative correlations between Facebook use with self-esteem and social adjustment, however social adjustment was only negatively correlated for younger year students (Kalipidou et al., 2011).

Meta-analyses were conducted to try and elucidate the relationship, a meta-analysis by Kross et al. (2013) and by Shakya and Christakis (2017) found weak negative correlations between Facebook use and subjective wellbeing, however some of the studies analysed showed positive correlations and others found results were moderated by individual differences e.g. state of mental health. With the relationship still considered largely unclear, researchers suggested methodological limitations such as overuse of cross-sectional designs may be an issue. More longitudinal studies were designed to establish changes over time and provide insight into cause and effect. These new designs however still failed to provide a clearer picture of the relationship; inconsistencies continued to emerge in the data. A longitudinal study by Kross et al. (2013) found that wellbeing decreased with increased SM use overtime, this finding was replicated by several other studies e.g. Shakya and Christakis (2017) and Verduyn et al. (2017). However other longitudinal studies found that wellbeing did not change over time with SM use i.e., there was no detectable relationship between SM use and wellbeing as in Ferguson et al. (2014) and Coyne et al. (2020).

A similar pattern was also emerging concerning smartphone use/PSU, lack of consistent findings led to more longitudinal studies, however a reliable coherent relationship still failed to emerge. A study by Jesen et al. (2019) was unable to find significant changes in adolescent mental-health symptoms over time with digital technology use. However other studies like Lapierre's et al. (2019) found that smartphone dependency did in fact predict depressive symptoms and loneliness over time, however smartphone use only, showed no relationship with depression or loneliness.

There were possible methodological limitations that could partially explain the inconsistent findings for smartphone/SM use and wellbeing. Firstly, the variables smartphone/SM use and wellbeing were not operationalised in a consistent manner, a variety of different measures were used potentially leading to discrepancies in results. Furthermore, the longitudinal studies also used different time periods between measurements. The validity of instruments used was also called into question, for example, a study with a sample of 50,000 individuals examining ten commonly used surveys to measure Facebook use found these correlated only weakly (Approx. $r=0.3$) with individuals' actual Facebook use patterns (Ernala et al., 2020). A study by Billieux et al. (2015) called into question the validity of the smartphone addiction scale (SAS), the most commonly used scale to investigate PSU/smartphone addiction/dependency, which was considered to have strong validity and reliability upon its development. Billieux et al., (2015) tested a sample and found that 18% of its highest scorers did not feel they were addicted to their smartphones, despite the measure strongly indicating they were, and 55% of the lowest scorers, (i.e. not addicted) felt they were addicted to their smartphones. Thus, the validity of the measure during development may not translate into real-world settings. These results are concerning considering almost all quantitative studies utilise these measures or variants of them, potentially calling into question the validity of large amounts of research.

With limitations in cross-sectional and longitudinal studies, some researchers turned to experimental designs to elucidate causality between smartphone/SM use and wellbeing, however, there are a limited number of these studies, many of which would not be considered true experiments due to lack of random sampling/randomisation of group allocation. Kross et al., (2021) reviewed eight studies with experimental designs on SM use and found a more consistent picture beginning to emerge, six of the eight studies showed SM use had a small negative effect on a variety of different measures of wellbeing. One study demonstrated no effect and another both positive and negative effects.

A similar picture emerged for PSU when experimental designs were used, generally finding increased PSU had a small but significant negative effect on wellbeing. For example, a study by Hessel and Motag (2024) found that a 14-day period of smartphone abstinence led to a reduction in body dissatisfaction. An intervention study by Brailovskaia et al. (2023) investigated smartphone reduction vs smartphone abstinence, finding that both groups caused small improvement effects on a variety of wellbeing measures, including depression, anxiety and cigarettes smoked/day, but found greater improvement effects in the reduction group, indicating some beneficial effects of smartphone use. However, a study by Kohut and Schumann (2020) found that a five-day abstinence period actually led to a decrease in wellbeing due to reduced social connection and difficulties managing daily life, indicating a potential functional dependency on smartphones and that complete abstinence may be ill-advised compared to reduction.

Although limited in number, experimental studies have allowed a more coherent picture to emerge, generally showing a small but significant negative effect of smartphone/SM use on a variety of measure concerning mental-wellbeing. However, many researchers feel that the effect sizes of these studies are too small to have real-world/clinical significance (Odgers et al., 2020). Others feel that the validity of measures is a fundamental flaw in the data collection, there are also other methodological issues such as sample sizes, reliance on self-selecting samples, and study design as well as the many correlational and longitudinal studies that have produced a mix of positive, negative and null correlations (Orben, 2020).

Although these are serious concerns, some researchers feel there is perhaps a more obvious and deeper reason why findings are often inconsistent or produce only small effects. Smartphones/SM have become extremely complex, particularly in recent years, there are myriad reasons one may be motivated to use a smartphone and countless ways an individual can interact with one. The great majority of research uses very broad variables, sometimes called aggregate variables, that often focus to a large degree on the quantity of use, e.g. Screentime, smartphone use, SM use, Facebook use, Instagram use, and to a lesser extent problematic use. (Yang et al., 2021). These aggregate measures are essentially grouping many different types of smartphone use and their associated behavioural and psychological impacts into a single number. This deeply limits our understanding of the fine-grained details involved in use but is also arguably a poor approach to understanding general trends. Due to their complexity, 'smartphone use' likely encompasses a wide variety of behavioural and cognitive interactions that have both positive and negative implications for wellbeing, the use of aggregate variables may inadvertently be averaging these effects out, leading to only small

negative/positive effects or null effects (Kross et al., 2021). For instance, a smartphone may be used to read an enjoyable novel or used to self-critically compare one's appearance to an endless stream of airbrushed images of models/peers; almost all currently available quantitative measures lack the discriminatory power to comprehensively differentiate between these behaviours. Commonly used aggregate measures unfortunately don't tell us anything about what individuals are actually doing on their smartphones, what they think and feel about them, why they are motivated to use them and crucially, what underlying behavioural and psychological processes that effect wellbeing may be activated during use.

1.2.6 A shift from quantity to quality

The over-reliance on cross-sectional study designs and the use of aggregate measures to capture the ever-increasing complexity of smartphones/SM use has led to inconsistent findings in the literature. A shift in the focus of research is now occurring, there is beginning to be a move away from aggregate variables and towards the quality of use i.e. underlying behaviour, motivations and psychological processes that occur during smartphone use that may affect wellbeing. Yang et al. (2021) argues that this further understanding of the nuances of smartphone use is essential, particularly for adolescents and young adults who are going through important, social, cognitive and emotional developmental stages. They argue smartphone/SM use is now an extremely important context in which development takes place for young and emerging adults, smartphones can be used as tools for emotion regulation, cognitive exploration and learning (Manago et al., 2020) and is increasingly becoming a major arena for relationship development and maintenance, which can have profound effects on wellbeing (Uhls et al., 2017). Whether this new context will have positive or negative implications on development and wellbeing is still up for debate. Yang et al. (2021) argue that the current view of smartphones/SM use is too simplistic and more nuanced research on the type and quality of use is required to elucidate this issue.

Researchers are advocating for a shift to quality of use due to clinical implications. The vast majority of intervention research is based on smartphone addiction. Although interventions around addiction may still be helpful for smartphone users, it is not necessarily the only or the ideal approach. Firstly, whether smartphone use actually constitutes an addiction is still a contentious issue for reasons explained earlier in the chapter (Panova and Carbonell, 2018). Additionally, the validity of smartphone addiction measures has been questioned and multiple measures of smartphone addiction are often utilised in research. A meta-analysis by Liu et al., (2022) analysed 23 randomised control trials aimed to treat smartphone addiction. They reported that there is very limited research

in this area and development is desperately needed but did find that exercise, CBT, and mindfulness-based intervention can reduce addiction scores, usually working best when interventions are used in combination. However, framing the issue in terms of addicted vs not addicted may be disadvantageous. Although more specific than quantity of smartphone use/screentime, smartphone addiction is still a relatively non-specific variable, in turn, the treatments are also relatively non-specific with a primary focus around reducing smartphone use time. Although this may be an appropriate treatment for true clinical addiction of smartphones, which may or may not be what smartphone addiction scales are measuring, it broadly discounts any impacts on wellbeing that are not related to addiction of which there may be many positive and negative. For instance, what if someone experiences cyberbullying over SM, or develops problematic eating or exercise habits due to content viewed, or feels unable to switch off from a stressful job due to continual access to their work email and recourses. Would these problems constitute a clinical addiction? Moreover, these people could feasibly be simultaneously using their smartphones to destress with a mindfulness app, listen to their favourite podcasts, stay connected to family abroad or find fulfilment from learning another language using an app. Smartphone addiction scales may be able to give an idea of how attached people are to their smartphones but would not be able to clearly discern why people are using them or what aspects of use tend to be detrimental or beneficial to wellbeing, yet this is where the vast majority of research is focused concerning intervention.

Researchers like Steele et al. (2020), Yang et al. (2021), and Kross et al. (2021) believe that only through uncovering the underlying psychological processes that are impacting wellbeing can high-quality, targeted clinical interventions be made that also recognise and utilise the overshadowed positive aspects of smartphones. Another issue with addiction-based approaches is that they rely on people being addicted to their smartphones, this is reactive treatment. Counselling psychology in particular is interested in preventative care, often carried out through early identification of challenging relationships (e.g. with one's smartphone), negative affect states and the reasons behind these, as well as attention to transitional and developmental states (Lee, 2019). Sohn et al. (2021) identified that around 40% of UK students aged 18-30, are addicted to their smartphones according to the smartphone addiction scale (this number has likely increased now), indicating a real need for early preventative intervention e.g. through providing large-scale education and specific intervention, before these problems have time to develop into a full-blown addiction. Counselling psychologists could play a vital role in this movement towards preventative care. However, any suitable education/intervention provided would again need to understand the psychological processes associated with specific patterns of use: What aspects of smartphone use induce negative

affect and how? How many individuals use their smartphone as a strength, e.g. to build resilience, and how? These types of questions need to be answered necessarily to provide comprehensive education that promotes healthy and balanced use and move beyond the reductive view that aggregate measure of smartphone use and wellbeing have thus far provided (Yang et al., 2021).

Fortunately, some research has been focussing on specific behaviour and psychological processes individuals are engaging in when using smartphones/SM and how these can affect wellbeing. In the next section I will highlight some of the main underlying psychological and behavioural processes that have been studied in the literature. This is not an exhaustive list due to scope of this review; my aim is to highlight some key findings that have elucidated the relationship between smartphone/SM use and wellbeing by moving beyond broad aggregate variables.

1.2.7 Social comparison

Human beings have a natural tendency to compare themselves to others, this has numerous uses, including helping imitate 'good' behaviour by aspiring to be more like those we admire and to help us judge our position within social groups, in turn, helping to reduce intra-group conflict (Suls et al., 2002). According to Festinger's (1957) Social Comparison Theory, comparisons can be either upward i.e. comparing ourselves to someone superior concerning a particular type of ability, or downward i.e. comparing ourselves to someone inferior concerning a particular ability. Festinger (1957) argued that upwards social comparison typically made individuals experience negative affect and reduced feelings of self-worth, and downward comparison had the opposite effect. Social comparison is largely automatic and subconscious, some individuals have a natural proclivity to self-compare more frequently. SM is the perfect platform for social comparison as there are thousands of user profiles, all in one space, that can be viewed sequentially and user profiles are curated with the knowledge they will be viewed by many others (Yang et al., 2021). However, unlike 'real world' social comparison, many researchers feel that social comparison on SM may be more detrimental to wellbeing. This is due to the fact that SM profiles are idealised – generally speaking, only desirable images of people are selected for show and disproportionately positive information is uploaded (Meier and Johnson, 2022), e.g. people are more like to share their successes than failures; moreover, images can be edited using filters to make users look artificially more desirable.

Informed by Festinger's (1957) theory, many researchers believe these abilities are disproportionately encouraging upwards social comparison which has negative implications for self-esteem and mood e.g. increased depression and anxiety symptomatology, this is thought to be

because people compare their 'real' selves (not their profiles) to idealised portrayals of their peers, as well as celebrities, models or influencers who also tend to induce upwards social comparison (Meier and Johnson, 2022). Indeed, there is evidence to support Festinger's (1957) theory in the context of SM. A study by Lup et al., (2015) using 117, 18-29 year-olds found that overall Instagram use was correlated with a slight increase in depressive symptoms (using the Centre for Epidemiological Resources Scale for Depression), however when investigating social comparison as a mediator (using the Social Comparison Rating Scale), they found that downward social comparison actually led to reduced symptoms of depression and that upward social comparison led to increased depression symptomatology. Since overall Instagram use was associated with a slight increase in depressive symptoms, it is possible that this is caused by a disproportionate amount of upward comparison on Instagram. However, since the study was correlational, it can't make any claims about causation, many other factors may be involved.

These findings were supported by a review by Verduyn et al. (2020) on the impact of social comparison on subjective wellbeing on all social media sites. Unfortunately, the authors do not explain the selection method utilised for the review. They found that upward social comparison was far more common in an online context which led to decreased feelings of wellbeing, and that occasionally social comparison would lead to increased feelings of wellbeing, if downward. However, the review painted a more complex picture of social comparison than simply upwards is bad for wellbeing and downwards is good. They found that there are many more factors which likely affect the dynamic - if people had a natural tendency to self-compare, they were more likely to get caught in a cycle of comparison and worry, they also found that how social media was being used was important in terms of what type of comparison was elicited e.g. passive scrolling led to more upward social comparison than active use of SM, e.g. posting, talking to someone. Importantly, they found that some upward social comparison was beneficial, it could encourage individuals to better themselves and inspire them. The review advises that the next stage in the research is to understand more about the context in which social comparison is taking place i.e. who is using the social media, how are they using, how does social comparison manifest itself in relation to wellbeing in different contexts e.g. active vs passive use. The authors argue that these questions are essential to answer if successful interventions are to be made to help SM users.

1.2.8 FOMO (Fear of missing out)

FOMO is another phenomenon that is also thought to be a potential underlying psychological process explaining the relationship between Smartphone use and wellbeing, it is measured using the

self-report FOMO scale (Przybylski et al., 2013). FOMO is very much related to self-comparison; it's sometimes even conceptualised as a form of social comparison. FOMO can be defined as a particular anxiety that arises from following the glorious lives of others, usually online (Tanhan et al., 2022). FOMO usually occurs in a social context e.g. SM users see their peers or unknown people doing something they can't do or haven't been invited to and subsequently feel they are missing out, excluded or rejected. In this way, it is similar to upward social comparison but usually within a social context.

FOMO has been linked to smartphone addiction in American (Elhai et al., 2020) and Chinese undergraduates (Li et al., 2022) and in a review by Tanhan et al. (2022) on SM and FOMO, it was found to be linked with various forms of negative affect, primarily chronic anxiety but also depression and low self-esteem. Unfortunately, the authors did not include the method by which they conducted this review. Isolating FOMO as an underlying psychological process is a huge step forward in elucidating the complex relationship between smartphone use and wellbeing. However, much like social comparison the current literature is lacking context and consistency. A review and meta-analysis by Akbari et al. (2021), which collectively analysed data from over 55,000 participants, found that the association between FOMO and internet use varied greatly across studies, from very weak to strong correlations. Additionally, FOMO appeared to go up with age in some studies and decrease in others, the authors found that FOMO didn't relate to anxiety or depression contradicting results from many previous studies and reviews e.g. Tanhan et al's, (2022). They concluded by saying that individuals are clearly experiencing FOMO differently and that we don't yet know what factors are involved in creating individual patterns of FOMO in the context of SM and internet use.

There are still many unanswered questions pertaining to the details and individual differences of FOMO and the context in which these arise. Why does it arise? In whom does it arise? When does it arise? What does it feel like to experience? What are the predominant triggers? What are its impacts on a person's relationships or view of themselves? Are people aware of it occurring? How do people cope with it? To answer these questions more refined and contextualised research designs will be necessary.

1.2.9 Active vs passive use

Active use on SM means that the users is actively engaging with the platform in some way e.g. talking to somebody, commenting on posts or making their own posts. Passive use means there is not active engagement, usually the user will just be scrolling through SM news feeds looking at content created

by others. A further refinement of aggregate variables e.g. smartphone use or SM use, is the distinction between active and passive use, investigating this difference in behaviour has again produced differential results in relation to wellbeing, speaking to the complexity of smartphone use and the need to move away from aggregate measures. Verduyn et al. (2022) found that the Active-Passive model of SM use was a helpful way to conceptualise potential effects on user wellbeing. They found that on average active use was beneficial for user wellbeing, theorising that this was likely due to the sharing of emotions, connecting with peers and relationship building. However, they found that passive use was on average associated with negative impacts on wellbeing, they theorise this was because users are exposed to large amounts of information about others, creating an environment that induces social comparison, however, as explained previously, the idealised nature of content on SM leads to a disproportionate amount of upward social comparison, leading to negative affect and reduced self-esteem. Verduyn et al., (2022) found that, on average, users were spending far more time engaged in passive use, providing a potential reason why, on average, aggregate measures of smartphone/SM use tend to be associated with reduced wellbeing.

However, Verduyn et al. (2022) and a further critical review by Verduyn et al. (2023) believe the active-passive model is still too coarse to accurately elucidate the relationship between FOMO on SM and wellbeing. After reviewing the existing literature, Verduyn et al. (2023) found that many of the studies investigating active and passive use did not support the active-passive use model, i.e. active is beneficial and passive is detrimental to wellbeing. They concluded that again more contextual information is required to gain a deeper understanding, i.e. what content is being viewed, who is viewing the content (individual susceptibilities/predisposing factors), what mood are users in just prior to using SM. Nonetheless, the active-passive use model has been instrumental in shifting the conversation away from quantity of use to quality of use, further encouraging the refinement of measures and new study designs needed to advance the research and our understanding.

1.2.10 A need for new research designs

The shift from broad aggregate measures like smartphone use time, to more specified underlying psychological and behavioural processes on particular apps or categories of apps has been a significant step forward in elucidating the relationship between smartphone use and wellbeing. However, as variables have become more refined the same issue seems to continually emerge; a new layer of complexity becomes visible, obfuscating the clarity of the relationship. Whether looking at social comparison, FOMO or active vs passive use, inconsistencies have again arisen in the data. As explained above, many researchers point to the same issue, there is a lack of context surrounding

findings. Researchers do not have a clear idea of the details surrounding what participants are actually thinking/feeling/doing on their smartphones. This makes findings very difficult to explain and contextualise e.g. why is upward social comparison inspirational in some cases, to some participants, and in others it leads to negative affect and reduced self-esteem? What circumstances cause participants to experience FOMO? Why is active use beneficial to wellbeing, and is this the case in all contexts, what about cyberbullying or 'trolling'? Some researchers believe that a much more in depth understanding of the phenomenon is required as its vast complexity becomes clear (Griffeon et al., 2021). Moreover, Smartphone/SM development is not static, they are becoming increasingly complex and user interactions with platforms evolve over time. Hence, whilst further refining of quantitative variables is proving fruitful, qualitative approaches should also be utilised in order to complement and contextualise quantitative findings, provide rich and detailed data on the complex human experiences that are playing out on smartphones and crucially understand more about the meaning of this phenomenon to participants. A qualitative approach should thus help to uncover underlying psychological patterns between smartphone use and wellbeing (Smith et al., 2018). Furthermore, the data produced from qualitative research could form the basis of new quantitative study designs and hypothesis testing, helping to guide quantitative research in meaningful directions. The next section will discuss some key qualitative findings in the literature.

1.3 Qualitative Research

Qualitative research on smartphone/SM use and wellbeing is very scarce in comparison to quantitative research. However, the few studies that have been done have produced some important findings, providing further evidence that aggregate measures of smartphone/SM use have significant flaws, often offering little descriptive or explanatory power. The findings have helped to generate some possible explanations for inconsistencies in quantitative studies by providing further detail and contextual information that appears essential to comprehensive understanding.

Moreover, understanding the motives, attitudes and individual psychology that occurs during smartphone use has created a far more nuanced perspective on the matter that complements previous quantitative findings. Finally, qualitative research has the distinct advantage of giving the people who are actually experiencing these phenomena a voice, allowing them to express their thoughts and feelings on the matter. Many researchers feel that this is not only necessary on an ethical basis but the wealth of information that qualitative methods can produce has been underestimated, and in fact, people experiencing these problems can often provide detailed and accurate psychological accounts of their experience, enabling useful insights (Griffeon et al., 2021). I

will now summarise some key qualitative findings in the literature in relation to the previously discussed research.

A UK based study by Conroy et al. (2023) interviewed fourteen 18-30 year olds on smartphone dependency and analysed the data using IPA. They found that smartphone use contained a mixture of positive and negative aspects, their participants valued the productivity smartphones afforded but felt this could slip into overreliance which could interfere with participant functioning and feelings of autonomy. Participants also reported it was difficult to spend time off their phones due to social pressure or self-deception, highlighting how modification of smartphone use patterns can be very difficult for individuals due to the culture of technology use.

A UK-based study by Conlin (2021) used focus groups to gather data on 16-18 year old's perceptions and experiences of smartphone use and PSU, the data was analysed using thematic analysis. They claimed that participants found recognising when smartphone use was becoming problematic or anti-social very difficult and highly context dependent. They found that participants could successfully use some features on smartphones to help limit their use, e.g. silencing notifications for certain periods but suggested this would be more helpful if encouraged by peers, schools and parents, providing an element of social accountability. This has important implication for theoretical and practical intervention design.

A study by Vainio et al. (2023) interviewed young Finnish adults and analysed the data using content analysis. They were exploring participant's help seeking behaviours when encountering problematic SM use. Some of the main findings were that participants felt they were not aware of the risks that social media posed, feeling more knowledge on the subject would be important. The authors report how little information is present on what young people feel they need when encountering difficulties on SM and that this is a gap in the literature that needs addressing.

A study by Griffeon et al. (2021) aimed to study the attitudes and experiences of participants using a smartphone, they collected data using a focus group and used thematic analysis to analyse their data. One of their main findings that quantitative research has struggled to address is the vast amount of variation in use between participants, many displayed very different patterns of use and used their phones for different reasons. The authors also recognised that the individual characteristics e.g. personality traits of the participants likely impacted the way they used their smartphones and SM. These findings strongly support the fact that aggregate variables such as

smartphone use, SM use and screentime cannot be considered to be homogeneous, as they are sometimes assumed to be in quantitative research, and thus cannot be considered to have a uniform impact on mental health (Griffeon et al., 2021). This theory has garnered support from various other studies e.g. Granic et al. (2020).

The findings of this study also called into question some previous quantitative findings. Many quantitative studies have theorised that negative social comparison on SM and emergent negative affect such as jealousy, envy and anxiety are largely responsible for the negative impacts on mental-wellbeing created by smartphones e.g., Tandoc et al. (2015). However, Griffeon et al. (2021) actually found that most detrimental feelings amongst their participants emerged from feelings of aimlessness, boredom and time-wasting, usually the context to this was non-social, unlike comparative behaviour. In fact, the authors found that the social parts of SM, despite sometimes eliciting difficult feelings from comparisons, were often associated with positive affect and feelings of connection. The potential positive implications of smartphone use on wellbeing is very rarely reported on in the literature.

Griffeon et al. (2021) found that individual characteristics and motivations of smartphone use cannot be ignored if we are to gain a holistic and comprehensive understanding of its impacts on wellbeing. They argue that an individual's sensitivity and propensity to emotionally regulate can have a profound impact on how SM content affects their mental health. Through this recognition that more distress-sensitive individuals with emotion regulation difficulties are more likely to experience negative impacts on mental-wellbeing, the authors were able to theorise that self-compassion, which bolsters emotion regulation, would be a potentially useful variable to study using quantitative designs, and as an intervention which has not previously been done.

The above is by no means an exhaustive list of the study's findings, but clearly highlights how important the intricate details and contexts of smartphone use are in understanding its relationship to wellbeing, enabling new insights and potential areas for further research. The authors strongly advocate for more personalised research designs using qualitative or mixed-methods to augment the current research of which the vast majority is based on cross-sectional, retrospective, self-report measures. Moreover, another key finding was many individuals used smartphones in an automatic, subconscious state potentially highlighting a flaw in accuracy of self-report measures which may often be completed quickly with little intentional reflection, unlike more lengthy, reflective interviews or objective measures.

A study by Childs and Holland (2022) interviewed seven young adults in the UK aiming to explore how they shifted between smartphone use and face-to-face interactions; data was analysed using IPA. Interestingly, they found that participants did not feel they were addicted to their smartphones, rather they described themselves as dependent, and held a variety of opinions about their phones – feeling they could be useful, comforting but also annoying. This paints a more mixed picture than the predominantly negative perspective of quantitative research, and although a small sample, the findings do not align with quantitative estimates of addiction prevalence. According to a study by Sohn et al. (2021) which utilised the smartphone addiction scale, over 40% of these participants would be estimated to be addicted. Several studies have reported participant subjective experience not aligning with quantitative measures e.g. Billeux et al. (2015), this could be indicative of two things: the validity of quantitative measures or a lack of awareness of smartphone use patterns from participants, or a combination.

In addition, Childs and Holland (2022) added much needed context to the association with anxiety that is often reported in quantitative research. Many participants reported that they struggled to navigate the new social pressures that smartphones enable through the ability to constantly communicate, participants felt that they experienced an expectation from peers to be on their phone at all times. This was particularly challenging when with their friends in person, as there is a competing expectation to be present with people face-to-face. Some participants felt that this could lead to a sense of disconnection from their peers but also the real world more generally due to smartphone's relentless demand for their attention, some described this phenomenon as dystopian. The authors found managing these new and competing social norms could result in the questioning/fracturing of relationships. This could have potential social developmental implications.

Participants felt that some individuals spent so long developing their online personas that this detracted from their real-world development. Some participants even felt distrusting of peers and paranoid if, in the presence of multiple peers, communicating via smartphones. Within the detail of this study, are possible explanations for previously reported associations with mental-health that warrant further investigation i.e. the conflict between social expectations on a smartphone and real-world interactions, the impact of the development of self and identity, and the fracturing of relationships.

A study by Harkin and Kuss (2020) interviewed 11 participants in a focus group, exploring the impact of using a smartphone and analysed the data using grounded theory. Similar to Griffioen et al's. (2021) study, they found that participants were not always fully aware of their own smartphone use behaviour, leading to a false sense of control. The authors note that this could be problematic in terms of the accuracy of self-report measures and any interventions for smartphone addiction. Harkin and Kuss's (2020) findings again show a more complicated picture than that depicted by quantitative studies. Participants experienced smartphone use as a double-edged sword, finding it extremely valuable for making and maintaining relationships yet also feeling continuous pressure from constant connectivity, theoretically conceptualised as a freeing-enslaving paradox by (Turkle, 2017). This more in-depth understanding further supports the notion that it is the quality of smartphone use behaviours that should be the focus when researching wellbeing, as opposed to quantity. Moreover, the participants reported many benefits to their smartphone use and the authors argue these can no longer be ignored, positive and negative implications of use must be considered together in order to promote healthy smartphone use and more targeted interventions.

Other qualitative studies have produced some similar findings, a study by Yang et al. (2019) obtained written narrative accounts from 265 participants relating to their attitudes, motivations for and consequences of smartphone use and PSU and analysed the data using framework analysis. Many positives of smartphone use were reported as well as negatives, including making life easier, improvements in academic study and relationships. Again, supporting aforementioned qualitative research, Yang et al. (2019) found that the people's first-person experiences of PSU provided a more complex and differing picture of PSU compared to quantitative measures. Moreover, they found that individual differences in the mental health and mental state of those using smartphones had a profound impact on PSU according to participants, in the analysis the authors suggest that PSU could be a reflection of the underlying individual psychology, such as emotion-regulation difficulties and social problems.

A study by Lukoff et al. (2014) investigating what makes smartphones meaningful/meaningless studied 45 students in the USA and obtained qualitative data via interview and quantitative data by logging participant app use approx. 86,000 times, allowing an objective measure of active/passive use. Their findings from interviews and the objective measures contextualises the active-passive use model's theory, indicating that rather than active or passive use impacting mental-wellbeing, the underlying psychological process seemed to be conscious intentionality; i.e. when users engaged in smartphone use consciously and intentionally, this was considered positive and meaningful to them,

which could involve passive scrolling. However, when smartphones were used in an unaware, instinctive manner, this was experienced as meaningless and detrimental to wellbeing, which was more commonly associated with passive scrolling. The study also highlighted participants being fully aware of their smartphone use was not a given and that this lack of awareness could have implications for wellbeing. The additional detail this study provided through its rich data has proven important in further untangling the complexities between smartphone use and mental-wellbeing.

A study by Dai et al. (2021) recruited 70 participants from a Chinese university, exploring smartphone use and mental-wellbeing using semi-structured interviews and thematic analysis. Other qualitative study's findings report on wellbeing but usually in relation to addiction or another focus, this is one of the very few qualitative studies with a specific focus on wellbeing. Given the vast amount of quantitative data finding associations between smartphone use and psychopathology this is somewhat surprising. Supporting aforementioned qualitative research, this study found that individual and situational contexts were extremely important in shaping the interaction between smartphone use and wellbeing and helping to identify possible causal links. They reported several examples of how the impact of specific smartphone behaviours on wellbeing cannot be viewed as homogeneous or unidirectional in their effects. An example being that smartphone use late at night is often theorised to be a sign of addiction, disrupts sleep and has negative implications for wellbeing. The authors found whilst this may be true for some participants who found smartphones to be stimulating, others experienced calming, soporific effects. They argue that individual and situational contexts contain essential detail that simply cannot be ignored, e.g. individuals may be using a SM late at night, comparing themselves to others and subsequently inducing a state of worry about their body image; alternatively, they may be listening to a soothing podcast, rain sounds or a mindfulness recording.

In sum, the findings from qualitative studies have produced new insights, contextualised and challenged previously held quantitative findings and allowed the voices of participants to come through in the research. It seems that a mixture of quantitative and qualitative research is necessary to comprehensively understand the complex relationships between smartphone use and wellbeing.

1.4 Study Rationale, Aims and Research Question

Smartphone use is rapidly proliferating, and young adults in particular are spending increasing amounts of time on their smartphones. The rise of smartphones over the past one-two decades neatly correlates with the dramatic increase of mental health difficulties in young people (Haidt,

2024). Indeed, much empirical research has found associations between smartphone use and addiction and various forms of psychopathology (Elhai et al., 2017). However, research findings have been inconsistent, largely due to the focus on aggregate variables, such as screen-time, too broad to untangle the complex dynamics that exist between smartphone use and wellbeing. Research has taken some significant strides forward in refining quantitative variables; however, this has continued to result in some inconsistencies; though a clearer picture is beginning to emerge regarding what aspects of smartphone use are detrimental or beneficial to wellbeing. However, much more work is still needed to clarify the relationships.

There has been a shift within the research community towards trying to understand the underlying psychological processes that occur during specific types of smartphone use which may have implications for wellbeing i.e. a shift from studying quantity to quality of use. Only through understanding this, can further meaningful research, education, clinical intervention or policy be developed (Kross et al., 2021). Many researchers feel there is still a paucity of basic and fine-grained detail and context missing from research, which is essential to gain a holistic and comprehensive understanding of the relationship between quality of use and wellbeing (Griffeon et al., 2021).

Qualitative research is essential in providing this detail and context through exploring participant lived-experience in depth, the few qualitative studies that have been conducted have been fruitful in complementing and challenging quantitative research, providing useful theoretical and clinical insights and acting as a platform for further quantitative research. However, of the very limited pool of qualitative research, almost none has investigated experiences of smartphone use, specifically in the context of wellbeing and mental-health, outside of addiction. Exploring this would seem to be essential if we are to further our understanding of the relationship between smartphone use and wellbeing, which is the aim of this research.

It is hoped that the findings from this research will help to direct and inform future research as well as having clinical implications for clinicians, including counselling psychologists. Many clinicians may not be aware of the potential impacts smartphones may be having on young adults, and the types of questions that may be helpful to ask during an assessment or intervention (Yang et al., 2021). I hope that awareness of this phenomenon will be raised by allowing the experiences of young adults to be heard and valued, enabling a deeper understanding to emerge, which may hold clinically relevant insights for researchers and mental-health practitioners. I believe listening to subjective experiences is particularly important in relation to this issue as the development and proliferation of this

technology is so rapid, the cultural landscape of smartphones and how they are used may be completely different in the space of just a few years. Thus, if we are to have a relevant, nuanced and informed discussion on the design and implementation of education, interventions or policy surrounding this technology, the voices of the young people using it, who truly understand it, will be essential. My hope is that this research can enable that to some extent.

The objectives of this research are to elicit contextual information and more deeply understand how young adults use their smartphones i.e. what are they actually doing on their smartphones? To further understand how young adults make sense of the impact of smartphones on their mental-wellbeing, importantly, trying to elucidate the links between specific uses of smartphones and underlying behaviours and psychological processes pertinent to wellbeing. To more deeply understand how young adults recognise and conceptualise the complex and dynamic culture of smartphones and how they impact their relationships, in the context of mental wellbeing. Thus, this study's research question is: "How do young adults in the UK experience and make sense of the impact of smartphone use on their wellbeing?"

2. Methodology

2.1 Rationale for qualitative research

Quantitative research in psychology is generally concerned with converting information from participants into numerical form using questionnaires, relatively large samples, then utilising statistical analyses to draw conclusions from the data. This is appropriate for testing hypotheses, identifying general trends and establishing causal relationships (Denzin and Lincoln, 2018).

Conversely, qualitative research tends to be concerned with subjective experience and meaning, often most suitable for exploring complex, poorly understood or dynamic phenomena in great depth, allowing new insights, nuances and contextual information to emerge from the rich data produced (Creswell and Creswell, 2017).

The previous chapter outlined how complex and multi-faceted the interactions between smartphone use and wellbeing have become, there is dearth of qualitative research in the field, which has led to a lack of basic and specific detail concerning how smartphones are used, and how particular types of use and individual and cultural contexts impact wellbeing (Griffeon et al., 2021). The aim of this study is to explore young adult's lived-experiences and sense making concerning their smartphone use and wellbeing, this is appropriate due to the complexity and dynamic nature of the phenomena and the paucity of qualitative research. This may enable insights into the behaviour and psychological processes experienced when individuals use smartphones. This is essential for research and clinical progression in the field and additionally, will give the young people most impacted by and most able to truly understand this issue, a voice; thus, a qualitative approach will be employed.

2.2 Ontology and epistemology

Ontology and epistemology are key features that underpin academic research. Ontology refers to the nature of reality i.e. what can be known, what is real. Epistemology is concerned with how we can

know, i.e. how knowledge can be acquired and created, including considering the role of the participant, researcher and their relationship (Clark et al., 2021).

Ontology and epistemology can be conceptualised on a realist-relativist continuum. A realist ontology posits that an objective reality exists separately of any human perception or ideas (Bhaskar, 1978), phenomena possess inherent properties and can interact in observable cause-effect relationships (Sayer, 2004). A realist epistemology attempts to discover knowledge that can enable understanding and explanation of this objective reality, such as scientific laws and cause-effect relationships by using the scientific method, the role researcher is often considered to be diminished or non-existent (Bhaskar et al., 1998).

Conversely a relativist ontology posits that reality is socially constructed through human perception, thought, language, ideas, and cultural and social contexts, and thus multiple different realities can co-exist together (Gergen, 1999). Relativist epistemology is concerned with the creation of knowledge through experiencing and subjectively interpreting social processes, as opposed to uncovering objective facts already 'out there' (Guba and Lincoln, 1994). The role of researcher is prized and has an active role in the construction of knowledge (Holiday, 2002).

This study will adopt a critical realist ontology, which assumes that there is an objective reality out there in the world but the human ability to understand it will be limited by our perception/cognition, thus we can never understand objects in their entirety (Bhaskar et al., 1998). In addition, the reality we are trying to understand will not necessarily be amenable to measurement and an individual's culture, values and beliefs will impact their interpretation of perception, thus, unlike positivist ideology, some form of subjectivity is considered necessary (Finlay, 2011; Bhaskar et al., 1998). In relation to this study, I believe that there is an objective reality that could fully explain how smartphone use impacts young adults' mental-wellbeing, but we will not be able to understand or measure this in its totality, as what we can know will always be shaped by participant and researcher perceptions and interpretations of experience.

The epistemological basis for this study is phenomenology, which emphasises lived-experience and the subjective meanings ascribed to such experiences, suitable for this study's aims. I will be hoping to create knowledge about what experience is like for participants, the focus will be concerned with the quality, texture and meaning of experience rather than trying to uncover any objective reality (Willig & Rogers, 2017). I will take a descriptive and interpretivist phenomenological epistemological

stance, meaning I will be paying close attention to participant's reflections on their experience and use this in and of itself as phenomenological knowledge (descriptive) and additionally, consider the meaning of this knowledge within a wider context e.g., psychological theory/literature and individual and cultural contexts, creating a further layer of knowledge and understanding (interpretivist) (Willig, 2013).

2.3 Overview and rationale for Interpretive phenomenological analysis (IPA)

IPA is a qualitative approach that's primary focus is subjective experience and how individuals make sense of and ascribe meaning to those experiences. It is usually used to study experiences of significance for individuals (Smith et al., 2021), commonly gathering data from semi-structured interviews. IPA is underpinned theoretically by three philosophical schools of thought: Phenomenology, hermeneutics, and idiography (Pietkiewicz and Smith, 2014).

Edmund Husserl, an Austrian philosopher, is considered the founder of Phenomenology, establishing the philosophy around 1900. Husserl saw great value in looking at the human experience of a chosen phenomenon in great depth and detail, he was interested in doing this from a purely subjective, experiential standpoint (Husserl et al., 1964). He felt the human proclivity to categorise, order and impose value structures over experiences, despite the uses, could blind us to the essential qualities of a phenomenon; arguing that an over-emphasis on conceptual knowledge could detract from experiential knowledge (Husserl, 1927). IPA is an approach primarily concerned with subjective experience and what those experiences mean to individuals.

Husserl was interested in finding a method or approach to understanding subjective experience, he argued this needed to involve some form of intentional reflection of one's own consciousness in relation to a particular object within our experience, including physical objects and those less tangible, such as thoughts, feeling, memories and psychological processes (Husserl et al., 1964). Through this process of intentionally becoming aware of our subjective perceptions of phenomena we can understand more about the meaning of experiences for people (Husserl, 1927). However, Husserl (1927) identified barriers to simply switching to a more phenomenological mode of experiencing. Human beings are familiar with the world around them, and over time take many experiences for granted, unable to view them with fresh eyes (Smith et al., 2021). For Husserl, our assumptions, preconceived ideas and firmly held beliefs about phenomena would directly interfere with our ability to see their true essence; for this reason Husserl came up with the concept of

‘bracketing’. This involved temporarily putting aside the ordinary, everyday world we experience and paying attention to our direct perceptions of phenomena within consciousness. Husserl (1927) believed the process of bracketing could be done continuously on multiple levels of experience, allowing the subject to get closer and closer to the essence of experience. He called this process the phenomenological method (Smith et al., 2021). Bracketing is a process commonly used by the researcher conducting IPA, particularly if collecting data via interview; the researcher attempts to withhold their own presuppositions as not to cloud the essence of participant experience (Smith et al., 2021). IPA is strongly influenced by phenomenology, it is concerned with lived-experience and what those experiences are like/mean from a subjective standpoint, it aims to understand ‘pure’ experience, free from pre-existing, assumptions or theories (Smith et al., 2021).

Hermeneutics is concerned with why and how interpretation is conducted, the train of thinking involved in making an interpretation and what the purposes are of any given interpretation (Sloane and Bowe, 2014). Additionally, hermeneutics considers the cultural and individual contexts in which interpretations take place, an important aspect of IPA (Smith et al., 2021).

IPA utilises a ‘double hermeneutic’ i.e., the participants make interpretations about their lived-experiences which are then interpreted by the researcher (Smith et al., 2021), this multilayered interpretation allows intersubjective meaning making and knowledge formation. Indeed, the philosopher Schleiermacher (1998) believed that a central part of studying and understanding interpretation was not only trying to make sense of the data but trying to make sense of the author and their sense-making. Schleiermacher (1998) believed this to such an extent that he thought it possible, through rigorous interpretation, that the interpreter could understand the author better than they did themselves. When using IPA in contemporary psychological research, this is not considered to be literally true, however, the detailed interpretation of participant data does uncover new meanings and knowledge beyond the original data set or can allow the data to be viewed in different contexts, giving it new significance (Smith et al., 2021).

Martin Heidegger, a German philosopher, initially studied under Husserl, attempting to further and refine his works on phenomenology (Smith et al., 2021). However, Heidegger’s work started to diverge from phenomenology as his focus shifted to hermeneutics, however his works on hermeneutics still have a phenomenological grounding (Smith et al., 2021).

Unlike Husserl, Heidegger felt that it was impossible to encounter pure experience, it is inevitable and inescapable that the one encountering new experience will bring some form of pre-existing idea, past experience, and assumption into the process of experiencing (Wild, 1963). Heidegger believed that these presumptions became intermingled with any form of subjective experiencing and needed to be understood and interpreted. Thus, Heidegger's concept of phenomenology was one that could not be separated from interpretation. Heidegger believed that preconceptions and past experiences cannot be removed from direct experiencing, only understood; in line with this view, IPA is reflexive, recognising and considering the researcher's views, perspectives and history in the analysis (Pietkiewicz and Smith, 2014).

A particularly important and central concept to the philosophy of hermeneutics is the 'hermeneutic circle', this refers to our understanding of experience, in that we must be able to analyse and understand individual parts of a phenomenon to understand it as a whole, yet, we must also be able to understand the whole to fully understand its individual parts (Grondin, 2015). This idea is central to IPA when analysing data, the process of interpretation is not linear but circular, and iterative (Smith et al., 2021). The analyst is continuously re-analysing data in the light of new information coming into the analysis, thus, the analyst is constantly shifting back and forth between different sections of data and parts and the whole of the data set.

The third philosophical underpinning is idiography. Idiography is interested in the detail and depth of the specific. This runs counter to much research in the natural and social sciences which usually seeks to uncover laws and principles with general applicability; however, an idiographic approach might be concerned with looking at a specific person, event or phenomenon in detail, attempting to understand what makes it unique (Smith et al., 2021). IPA is said to be idiographic as it aims to explore phenomena in great detail and depth, concerned with phenomenological idiosyncrasies and specific contexts. Moreover, IPA's analytic process itself is idiographic, a flexible yet systematic process designed to achieve a deep and detailed level of analysis enabling meaningful accounts of personal experiences and rich data within individual and socio-cultural contexts to emerge (Smith et al., 2021). Due to idiography's focus on the particular, detail, and depth, idiographic research methods such as IPA often work with small samples or single cases; working with large sample sizes as quantitative research does, is not feasible. However idiography is not necessarily mutually exclusive from generalisation, but cannot discuss it with the certainty large sample sizes and statistical analysis allows (Smith et al., 2021). Idiographic generalisations are thus made cautiously and can be considered something closer to suggestions, based on evidence located in the specific

(Harre, 2016). This ability to make tentative suggestions of generalisation makes IPA an ideal method for preparing the groundwork for future research. Moreover, rigorous and detailed analysis of a case/a small number of cases, can expose inconsistencies and faults in pre-existing theory derived from large samples, encouraging revaluation (Smith et al., 2021).

In sum, IPA is heavily influenced by all three schools of thought: phenomenology, hermeneutics and idiography. The approach is thus primarily concerned with detailed descriptions and interpretations of lived-experiences, what these mean to individuals and how they make sense of them. This includes recognising the impact of the contexts of experience (Pietkiewicz and Smith, 2014). Due to the emphasis on the particular, detail and depth, IPA usually uses relatively small sample sizes (4-10 participants) (Smith et al., 2021).

The literature on smartphone/SM use and wellbeing has been criticised for being too focused on broad trends, to the extent to which even basic details and contexts are largely missing (Griffeon et al., 2021), e.g., what are individuals actually doing when they're using SM/smartphones, what are they thinking and feeling when using it? Do certain uses create different feelings, how is this experienced? This type of experiential enquiry is essential if we are to better understand this highly complex and still poorly understood phenomena. Thus, IPA would appear to be the most suitable approach to address this gap in the literature and my research aims, with a focus on exploring lived-experience deeply, eliciting fine-grained detail, interpretation and meaning and paying special attention to the contexts in which experiences arise.

However, to ensure the most appropriate method and analysis, I also considered other approaches which were subsequently ruled out when deemed to be a less appropriate fit to address the aims and research question of this study. I will briefly explain my reasoning for excluding grounded theory and thematic analysis which could have potentially been used to address this study's aims. I considered grounded theory which like IPA, is an iterative and inductive approach, however, the main purpose of grounded theory is to develop a substantive theory from the analysis of data to help explain underlying social processes/phenomena (Glasser and Strauss, 2017). My research aims however are less concerned with theory development and more with subjective lived-experience, and the meaning/sense making process of participants. IPA is renowned for going deep into particularly meaningful experience and giving a voice to participants, which aligns more closely with my research aims than generating theories relating to social processes (Charmaz, 2014).

I also considered thematic analysis which has many similarities to IPA, a flexible approach often used to analyse complex phenomena, and also recognises the role of the researcher throughout the analytic process (Braun and Clarke, 2019). A key reason I chose IPA over thematic analysis was the depth of analysis. IPA is a more idiographic approach, focussed on going into depth with each participant to produce rich and detailed data. The literature review of smartphone use and wellbeing highlighted an over-emphasis of general trends and a lack of specific detail and context, thus choosing an approach which emphasises in-depth analysis of individual accounts is appropriate.

2.4 Research Procedure

2.4.1 Sample

This study aimed to recruit 4-10 participants as suggested by Smith et al. (2021) for doctoral research using IPA. Six participants were recruited using purposive sampling as I aimed to explore a particular phenomenon within a particular group of people. In line with IPA's recommendations, a homogenous sample was selected (Smith et al., 2021).

2.4.2 Inclusion criteria

Participants had to own their smartphone; specific make did not matter as long as it was 'smart' i.e. had internet access, instant messaging and could download and run applications. Participants had to be able to speak English comfortably and read and write in English. Participants were required to read the participant information sheet and agree to every section of both informed consent forms (one for screening, one for main study). Participant's smartphone use must have been impacting their mental wellbeing at the time of participation in the study (either positively or negatively). Participants needed to be between 18-25-years-of-age at the time of interview. This age group was selected because on average, they spend more time on their smartphones and smartphone use is more strongly correlated with psychopathology and addictive/problematic use amongst this group (Horwood et al., 2021). Participants needed to be based in the UK; this was required to improve sample homogeneity and for additional ethical reasons, e.g., being able to provide relevant/local support services should any difficulties arise during the study.

2.4.3 Exclusion criteria

Participants would be excluded from the study if they did not own a smartphone, if they had difficulty speaking, reading or writing in English. If they fell outside of the 18–25-year age requirement, if they did not think their smartphone use was impacting their mental-wellbeing. If they had not read the participant information sheet or did not consent to one or more items on the

informed consent forms. Additionally, participants could not be experiencing any 'moderate-severe' or 'severe' mental health difficulties at the time of the research, this was to ensure participant wellbeing. A GAD-7 and PHQ-8 questionnaire was used as a screening tool for anxiety and low-mood, scores above 10 for GAD and 14 for PHQ-8 (the upper limits of moderate difficulties) meant participants were sensitively removed from the study to safeguard their wellbeing. A validated PHQ-8 questionnaire was selected to measure low mood, my supervisor advised the use of this measure over a PHQ-9 to reduce potential distress by asking directly about suicide.

2.4.4 Recruitment Procedure and Screening

Participants were recruited using an advertisement flyer (Appendix 1) posted on SM (Instagram, Facebook, Twitter/X) using a research SM account specifically designed for this project. University SM groups were targeted for recruitment as they're more likely to have a younger age group appropriate for this study. The advertisement flyer was also disseminated to psychology/counselling/clinical psychology internet forums, as well as my own professional/personal social groups such as City University students' groups on WhatsApp/SM.

Interested participants were sent the participant information sheet (Appendix 2) and invited to an initial screening call to check for eligibility. They first needed to sign the consent to screening call form (Appendix 3) emailed to them. The screening call checked inclusion criteria were met (see Appendix 4 for screening call guide) and screened for moderate-severe or severe psychological distress using the PHQ8 and GAD7 questionnaires (Appendix 5), participants who were not eligible for the research were signposted to support services/resources. Eligible participants were sent the research study consent form (Appendix 6) to read, sign and send back via email as well as a participant demographics form (Appendix 7), interview guide (Appendix 8) and contact details form (Appendix 9). Interviews were then arranged within 3-months of the screening call. Multiple additional participants showed interest in the study who unfortunately did not meet screening requirements, additionally, four eligible participants attended screening but unfortunately did not respond to invitations to interview.

2.5 Data collection method

IPA requires that rich, textured data relating to personal experience is gathered from participants. In depth, semi-structure interviews are considered an ideal way to collect such data, which this study utilised. This method was chosen over unstructured interviews as having some structure can help put participants at ease, helping them to access deeper parts of their experiences and can ensure topics of importance are addressed as well as allowing participants to talk freely and at length (Smith et al.,

2021). Semi-structured interviews were selected over written accounts e.g. journals, as they enable the researcher to help participants access deeper parts of their life-worlds by using prompts and helping to keep the focus experiential (Smith et al., 2021).

2.5.1 Development of semi-structured interview guide

A guide was developed to help ensure areas of importance relating to the research question were comprehensively covered as well as providing some structure to help the participants feel at ease and therefore feel more comfortable discussing intimate lived-experience, this can be particularly useful for more nervous or reserved participants (Smith et al., 2021). I considered what questions I would ask in the interview guide extremely carefully and consulted my supervisor for additional guidance as well as other students on my course to check for general sense making. These discussions led to several changes being made to the style/structure of questions and the number and order of questions. My aim was to create questions that were open-ended and not leading, allowing participants to take the questions in any direction they wanted and encourage lengthy descriptions and evaluations of personal experience. I aimed to start with more simple questions that would elicit more descriptive answers, this is recommended to put participants at ease, leaving them in a better frame of mind to explore more contemplative/evaluative or sensitive questions later, a process known as funnelling (Smith et al., 2021). Questions in the guide were designed to help participants speak at length, I eventually selected nine questions, estimating the interviews would take 60-90 minutes, as recommended by Smith et al. (2021). Each question had a series of prompts attached, should participants find it hard to connect with their experience from the initial questions.

2.5.2 Pilot Study

Before I conducted interviews with participants, I first conducted a pilot study with a friend of a friend who met screening and eligibility criteria. The intention of a pilot interview was to ensure the interview schedule was capable of producing the required length of interview and depth and complexity of experience needed for IPA, as well as to get feedback from the participant on the process. The interview took place over Zoom due to Covid-19 restrictions and lasted 74-minutes which was about the right length of time. The interview produced rich and textured data relating to the participant's experience, the questions made sense to the participant and the question prompts were helpful but not overused. The participants fed back that they felt comfortable during the interview and that it was delivered at a good pace; they felt able to speak freely for as long as needed. They reported that they didn't think anything needed to be changed in terms of their

comfort, the clarity of questions, or setting. After discussing the outcome with my supervisor, I decided not to alter the schedule.

2.5.3 Participants selected for interview

Participant name (pseudonym)	Talia	Eva	Rosa	Brian	Hannah	Riana
Age	18-24	18-24	18-24	18-24	18-24	18-24
Gender	F	F	F	M	F	F
Length of interview (minutes)	87	78	82	60	77	70

Table 1.0. General participant interview information

2.5.4 Interviews

Participants who met eligibility and screening criteria were invited to attend interviews via email communication. All interviews took place over Zoom (City account) to ensure participant safety as a result of the pandemic, moreover research has shown online interviews can actually put participants at ease, encouraging them to speak freely and openly as they can be in the comfort of their own homes (Iacono and Symonds, 2016). An interview safety protocol was followed in case of distress (See Ethical Considerations pg.49). The interviews were recorded via Zoom. All interviews were conducted in a private and confidential setting and took place without interruption. Before the interview began, participants were offered the opportunity to re-read the participant information sheet and interview guide and ask any questions about the study, this helped to put participants at ease and familiarise them with the layout of the interview. No issues arose during the interviews with any participant. All participants were offered a verbal debrief (Appendix 10). More information about the ethics and dynamics of the interview can be found under 'Ethical Considerations' (pg.49) and 'Procedural Reflexivity' (pg.56).

2.6 Transcription

All participant interviews were transcribed verbatim. Smith et al. (2021) suggests that non-verbal aspects of communication do not require careful transcription. However, I decided to include meaningful non-verbal communication like pauses or gesticulations, as well as other aspects of verbal communication such as emotional tone, and laughter in parentheses.

2.7 Analytic procedure

This study used the seven-part interpretative phenomenological analysis strategy from Smith et al. (2021). I used this strategy because it's a comprehensive and clearly structured approach to analysis and will enable anyone else interested in the research to clearly follow and understand the steps used in my analysis and replicate the study if desired. Giorgi (2011) has criticised IPA due to difficulties concerning replicability; they argue that clearly structured and demarcated steps are required to counter this.

2.7.1, 1: Reading and re-reading

In this stage I immersed myself in the data by reading my participant's interview transcript multiple times whilst also listening to the audio recording. I recorded what I considered salient aspects of the transcript in my research journal. The repeated listening and reading helped me to begin to understand the participant's life-worlds and understand the interview's sequences and structure.

2.7.2, 2: Exploratory noting

I started to take some initial exploratory notes in the transcript right-hand margin. There are no strict rules of what to note here - my main aim was to closely engage with the data and create a detailed and comprehensive commentary throughout the transcript, with a focus on my participant's experience. My notes could be broadly split into three categories, some being mainly descriptive, others would be more conceptual and interpretative whilst remaining grounded to the participant's experience and some were linguistic notes, focusing on the participant's use of language and the meaning behind it – e.g., tone of voice, pauses, laughter, emotion, metaphors, and repetition. An example of exploratory noting can be seen in Appendix 11.

2.7.3, 3: Constructing experiential statements

I made a set of experiential statements (Appendix 11) in the left-hand margin using data from the transcript and my exploratory notes. The aim was to create a concise and meaningful summary (in the form of statements) from the exploratory notes and transcript, selecting the most salient points

in the data whilst also considering the data as a whole. This stage remained grounded in the participant's experience but became slightly more interpretative/conceptual than the previous stage.

2.7.4, 4: Searching for connections across experiential statements

I printed and cut out the list of experiential statements and mixed them up so they were no longer in chronological order. I started to group related statements together which were comprised of particularly important parts of the participant's experience that would help to answer my research question. I explored multiple possibilities of grouping formations. This eventually formed clusters and sub-clusters of related statements which could be used as a way of making sense of the data.

2.7.5, 5: Naming personal experiential themes (PETS) and sub-themes and creating a table

The clusters and subclusters made in stage four formed the basis of PETS and subthemes, respectively. In stage five, these are given titles that summarise their characteristics to aid sense making of the material. The participant's PETs and their subthemes are then organised into a table (Appendix 12).

2.7.6, 6: Repeating the individual analysis for other participants

After creating PETs and subthemes for the first participant, steps 1-5 were repeated systematically for the five others. Due to IPAs idiographic focus, it is important to treat each case individually to enable each participants' subjective experience to come through in the data. However, some form of influence from other cases is inevitable and even encouraged providing space is made for the unique qualities of each individual case to emerge in the analysis.

2.7.7,7: Developing Group experiential themes (GETS) from the PETS across all participants

At this stage I carefully analysed all PETS, related subthemes and experiential statements from every participant, looking for similarities and differences across the PETS of the different cases to create group experiential themes. This process aims to group the most salient common and individual features of the entire data set into GETS. This is the final and broadest level of analysis. (See Appendix 13 for table of GETS)

2.8 Ethical considerations

This research adhered to the core principles of the BPS Code of Human Research Ethics: Respect, competence, responsibility and integrity (Oates et al., 2021). The study was free of deception or coercion. Ensuring participant wellbeing and minimising chances of distress wherever possible was

prioritised throughout this research. Participants were encouraged to discuss their wellbeing and raise any concerns prior to and during the interviews, which had potential to be distressing.

As previously discussed, eligibility and screening criteria needed to be met in order to take part in the study to safeguard participant wellbeing. Scores on the PHQ-8 and GAD-7 indicating moderate – severe/severe mental-health difficulties resulted in participants being sensitively informed they were not selected for the study and signposted to relevant mental-health services, helplines, and their GP, if required. Participants who scored low/moderate on measures could enter the study and were still offered signposting to services both verbally and via email, if desired. A gap between screening and interview of over three months meant participants would need to take the questionnaires again before the interview to ensure no new mental health concerns had developed. All participants were required to read and sign the participant information sheet, informed consent to screening form, informed consent to study form, demographic information form, contact details form and had the option to read the interview schedule before participating. Participants were free to ask any questions they desired about the research before the interview started. After the interview a debrief was offered to see how the participants found the interview, answer any questions and to check if they felt distressed in any way.

Distress may occur during the interview process. I made sure participants knew the nature of the questions prior to interview and I encouraged them to take breaks as and when needed to reduce chances of distress. If I, or the participant noticed distress during the interview, I had an interview distress protocol in place to follow: A modified distress protocol taken from ‘Developing Distress Protocols for Research on Sensitive Topics’ (Draucker et al., 2009), asking: 1. How are you feeling right now?, 2. Do you feel distressed at all?, 3. What are you feeling and thinking at the moment?, 4. Do you want to end the interview?, 5. Do you feel you need further support? (If yes, participants will be signposted to services/resources and offered further emotional support).

Should the interview have failed for technical reasons, participant’s would be instructed to log back into the interview using the same Zoom link, if that failed again the interview would be conducted over the phone and recorded with a City approved recording device. My supervisor was also made aware of interview schedule, times/dates and if any distress occurred. Fortunately, all interviews took place without any technical difficulties, distress, delays or interruptions.

Participants were informed that they could withdraw their data up to one month after the interview, giving them adequate time to think this decision over. Participants were also offered a chance to review their transcript to decide if it felt like an accurate representation of their experience. If they chose to do this, they would've been given 10 days to provide any feedback via email or telephone and I would've altered the transcript to represent their experience more accurately. No participant requested to review their transcripts.

Participants were reminded that they could terminate the interview at any point, withdraw their data (for one month after interview) and had the right to make a complaint. Participants were made aware of confidentiality arrangements. All data in the study was anonymised including identifiable information such as names and places in the transcripts or identifiable direct quotes. Questionnaire scores and transcripts were number coded to protect confidentiality. All digital data was kept securely using password protected/encrypted files. Any data recorded on paper was kept in a locked drawer. Any data recorded that was not needed for the study was immediately destroyed. Consent forms and contact information containing identifiable information was kept securely in a separate password protected file. Participants were also made aware and consented to the possibility that their anonymous data may be disseminated e.g., to a scientific journal and that non-identifiable direct quotes may be used. Participants were made aware their data would be kept by City university for 10 years after collection in line with university protocol.

2.9 Evaluation of research

When evaluating the quality of quantitative research, researchers often look at validity, reproducibility and generalisability of research. However, these metrics of quality are not meaningful when transferred to qualitative research, thus new criteria are needed to assess quality (Willig, 2013). This research used Yardley's (2000) framework to ensure a high standard of qualitative research was conducted; this framework can be used flexibly and applied to a wide range of qualitative methodologies, including phenomenological approaches like IPA (Smith et al., 2021). I explain below how Yardley's (2000) four principles for creating high quality qualitative research were utilised.

2.9.1 Sensitivity to context

This study was sensitive to context on multiple levels, firstly I conducted a thorough literature review to identify a gap in the literature and to understand and conduct this study in the context of previous theoretical and empirical findings. Care was taken to create a narrative relating to how research on

smartphone/SM and wellbeing had evolved and developed over time and the logical next steps that needed to be taken to progress the research. This study's findings were then discussed in the context of other research, helping to draw conclusions from the data and identify potential clinical and further research implications (See 'Discussion' pg.94).

The sociocultural context was also considered in this research, demographic information was taken from participants e.g. age, gender, living in UK. This study was situated within a Western context, this is important as there are significant differences in smartphone use across developed vs less developed countries. Moreover, literature was reviewed relating to the increase in young people's mental health problems in recent years and related to the rapid development of new technologies like smartphone/social media use, and how these technologies have a disproportionate impact on younger people compared to other age groups, on an individual and cultural level. The context of the researcher was also considered, and how they may have shaped the research, evaluated in the reflexivity section of this chapter and at points in the discussion.

2.9.2 Commitment and rigour

This study showed commitment and rigour through my own deep immersion in the literature, extensively reading relevant research, books and attending lectures on the study's subject. Moreover, I was committed to understanding qualitative methodologies and selecting the best approach for my research aims and question. Once IPA was chosen, I read literature and books to gain a comprehensive understanding of the approach and attended lectures and seminars on IPA which included supervised practices with peers until I felt competent using the approach. Once deciding to use semi-structured interviews to collect data and ruling out other possible methods of data collection, I conducted a pilot interview to ensure the data gathered was of adequate depth, scope and that the questions made sense to the participant. During the analysis, I was careful to ensure that I made interpretations and did not merely describe participant experience, however I was sure to ground any interpretations in direct quotes from the participants. When forming PETs and GETS from participant data, I took the time to ensure that I was creating the best possible themes, this meant discarding some themes, combining others and rearranging and refining subthemes. I made sure to stay true to the idiographic nature of IPA when creating group themes, looking for areas of convergence and divergence across all themes, trying to allow for shared and individual experiences to come through in the analysis.

2.9.3 Transparency and coherence

I strove to be as transparent and coherent as possible throughout this research. I made sure to document and justify all decisions made. This included how and why I came to choose my research question and selection of methodology. I was sure to outline how I conducted my research procedure thoroughly so another person could comprehensively understand the process or replicate the study or a similar study. All the documents used in this process can be found in the appendices. I explained my analytic procedure, broken down into seven stages (Smith et al., 2021), I provided examples of each stage of analysis in the appendices. Interpretations made in the analysis are all linked to direct quotes so that consumers of the research can clearly follow the thinking behind the interpretations made. My own personal, methodological and procedural reflections are also documented in this research to further clarify my thoughts, feelings, attitudes and decision-making processes to the reader and provide additional context relating to the researcher's role and influence on this research.

2.9.4 Impact and importance

I believe the subject of this research is a matter of great importance, the impacts of smartphone use on the mental-wellbeing of young-people is still largely unknown due to this new technologies' rapid development and proliferation, but more recent research is indicating, at least some aspects of smartphone use, may have profound effects on some user's wellbeing (Elhai et al., 2019). I believe this study has important clinical and future research implications. It has provided much needed findings on the experiential intricacies of smartphone use and the potential underlying psychological and behavioural processes during use; thought to be critical in the development of clinical understanding, interventions and future research and added much needed subjective and experiential context to a largely quantitatively dominated literature base (Kross et al., 2021).

These findings could help mental-health clinicians and psychologists in developing their clinical understanding and intervention by highlighting the importance of assessing and treating the quality of smartphone use as opposed to quantity, allowing for more individualised, nuanced and targeted interventions (Yang et al., 2021). It may help anyone who reads the research, in a clinical/research setting or otherwise, understand some of the experiences young people go through when using a smartphone/SM, hopefully helping to raise awareness of this issue for a group that is disproportionately affected by and vulnerable to rapid changes in technology such as SM. It is also hoped that this research was impactful for the participants involved, helping them to reflect on their own smartphone use in a more deliberate and prolonged way, potentially helping them to raise awareness of the individual benefits and drawbacks of their smartphone use and importantly give

them a platform to share their story and allow their voices to be heard. More information on impact and importance can be found in the discussion under 'Relevance to counselling psychology and clinical implications' and 'Future research'.

2..10 Personal Reflexivity

Personal reflexivity involves examining the impact of my history, values, beliefs and judgments on this research and also how the research has impacted me (Willig, 2013). I first became interested in this topic when I started to notice negative self-evaluations/mood due to my smartphone/SM use. I'd also seen occasional articles about their detrimental effects on mental-health. I decided to read some peer-reviewed studies myself, the majority of these showed correlations between smartphone/SM use with anxiety and depression. I felt this interaction could be more complex - it seemed strange to use smartphone/SM as one variable, from personal experience I felt there were a multitude of ways smartphones could interact with wellbeing, some positive and some negative. I believed aspects of smartphone use could potentially be very damaging to wellbeing, knowing this from personal experience, research and having heard challenging personal accounts from younger family members, including a family member who described themselves as "on the way to developing an eating disorder" due to chronic body image comparison on SM. I felt it could be a growing public-health concern that needed more enquiry.

Having worked closely with young people in schools, universities and the NHS, I felt that these institutions and their mental-health practitioners did not seem aware (enough) of the potential issue, despite the rapidly rising rates of mental-health difficulties correlating closely with the rise of smartphones. I felt this was an injustice to younger people who were given these devices, usually around 11-12-years-old, without any education on the potential risks. Thus, my reasons for wanting to conduct this research are two-fold: I want to understand more about the complexities of the relationship between smartphone use and wellbeing by talking to younger people themselves, who hold unique access into this world, having grown up with this technology as part of their culture. Additionally, I want to raise awareness of this issue amongst practitioners, researchers and institutions, which I feel is lacking.

Reflecting on my personal position as a researcher, I would consider myself a 'partial insider', as I have personally experienced smartphone use impacting my wellbeing, primarily through WhatsApp and Facebook which involved comparing myself to others and feeling the stress of continuous messages but also simultaneously feeling free and connected to my peers. However, I also consider

myself an outsider, unlike participants, I started using SM when I was sixteen/seventeen, not my pre/early adolescence, encountering this technology at a significantly later developmental stage in life undoubtedly changed the experience and likely the impact it had on my wellbeing. The complexity of the smartphones we grew up with was also vastly different, for participants, they were far more powerful and their apps far more advanced, as well as being much more deeply ingrained into their culture, seen more as a necessity rather than a new gadget only some people had. Thus, in many ways I have not experienced the same phenomenon and quality of experience as participants.

Nonetheless, it remained important to withhold what personal experience I did have from the interviews to let participant subjective experience come-forth unmodified, also true of my knowledge of psychological theory and research. Completely withholding preconceptions and assumptions is impossible, however I endeavoured to do this as best I could by discussing interview technique with peers and my supervisor, recording each interview process in my research journal, and firmly grounding any interpretations I made in the words of the participants.

I noticed that my personal opinions on the research topic changed as I conducted the research, which I documented in my research journal. Initially, I believe I had started to develop a negative bias when considering the impact of smartphones on wellbeing, this was largely due to the literature base being predominantly focused on negative implications on mental-wellbeing, with very little research focused on the benefits (relatively). As I started to interview the participants, I noticed that all of them reported tremendous benefits, affording them connection, new freedoms and skills and education which they deeply valued and felt had improved their lives. However, I was simultaneously struck by the personal stories of chronic anxiety, low-mood and identity distress that participants felt was caused by their smartphone use. This left me with a greater appreciation of the positive and negative impacts smartphones were capable of creating and the importance of detailed, contextualised research as well as the importance of continuously monitoring and being aware of my own assumptions throughout the research.

2.10.1 Methodological Reflexivity

It's important to recognise that if different interviewees had met inclusion-criteria, they would have produced different data. Even the same interviewees interviewed at a different time or in a different mental-state may have produced different data. Similarly, a different researcher would have garnered different information from participants and made different interpretations. Thus, this study only

claims to report on these participants' subjective experiences through the use of semi-structured interviews and IPA to enable intersubjective meaning-making, allowing the creation of rich, contextual and detailed findings directly relating to their lived-experiences. Any transference of findings must be made very tentatively, recognising the context of this study and relating findings to pre-existing research/theories (Smith et al. 2021). Moreover, IPA recognises the role of the researcher, their background, and profession which will impact the type of interpretations made. Consequently, the interpretations I've made are primarily from a clinical/theoretical psychological perspective, as a trainee counselling psychologist.

IPA has been critiqued for lacking validity and rigour (Giorgi, 2010), to ensure the quality of this research, I closely followed Yardley's (2000, 2008) recommendations on producing high-quality qualitative research, hopefully creating transparent, theoretically and clinically meaningful findings.

IPA is also criticised for discounting the integral role of language in constructing experience (Willig, 2008), whilst I believe this is true to some extent, I believe language can accurately describe experience closely enough for the purposes of this study and I do not agree in entirety that language precedes and therefore shapes experience, I believe a bidirectional relationship between experience and language exists, each shaping the other. Moreover, recognising its importance, I've been sure not to exclude the role of language in this study, carefully analysing participant repetitions, body-language, metaphors, emotional-tone, laughter and pauses.

IPA is also criticised for relying on participant's language capabilities e.g., their descriptive skills needed to accurately capture lived-experience. It has thus been suggested IPA is more suited to articulate individuals who may be more adept in describing experience (Willig, 2008). Whilst I believe this is likely true to some extent, I believe most adults and adolescents have adequate descriptive skills to describe their lived-experience as well as use of emotional tone, gestures, facial expression to aid communication. In addition, I believe if individuals are struggling to communicate, this issue can be addressed by asking for clarification, using prompts, and giving participants more time to think, as advised by Smith et al. (2021). I utilised these techniques to help get closer to participant lived-experience, many of interviews were well-over an hour and resultantly produced rich, textured data. In any case, I felt the participants were thoughtful and eloquent individuals, capable of describing their experiences accurately. Moreover, I feel there is risk that the use of IPA will become elitist in the sense it will only be used for those deemed, educated or intelligent enough to use it 'properly'.

2.10.2 Procedural Reflexivity

Here, I primarily reflect on the impact of power and interpersonal dynamics in the interviews with participants. Other pertinent procedural reflections such as negotiating inclusion/exclusion criteria, sample size/demographics and the self-selecting nature of sample are addressed under 'Strengths and Limitations' (pg. 120).

I collected data through semi-structured interviews using carefully considered open-ended questions, I wanted to ensure a balance of attending to key topics of interest/relevance and providing structure, whilst also leaving adequate scope for participants to express themselves freely and take the discussion where they desired. This approach enabled structure, flexibility and breadth (Dearnley, 2005), producing rich and diverse data.

Throughout the interviews I was aware there was a power differential due to my role as a researcher and comparatively older age, I noticed this differential most strongly with the youngest participants who I felt may have viewed me like a teacher; I did my best to put participants at ease and make them feel like co-researchers. I have a keen interest in working with younger people, having worked in school and university counselling services. At times, I felt an internal battle as naturally I wanted to help participants who became emotional, I strove to keep a continual awareness of my primary role as researcher, not therapist. Despite feeling some guilt/anxiety at times; knowing I was going to offer a debrief, resources and signposting information after the interview help me maintain an empathetic but research-focused stance (Finlay, 2005).

There were occasions I felt unable to withhold my prior knowledge of research/psychological theory fully, and felt this affected the trajectory of the interview. For example, Rosa explained that SM could help with social anxiety in-person by allowing compensatory communication online; being aware of the role compensatory online-communication can play in maintaining anxiety, I asked her if this was always helpful? She responded, saying it could also be used as a social crutch. This clearly took her out of her frame of reference, she may have simply been trying to give the 'correct' response i.e. the Hawthorne effect (Adair, 1984). On another occasion I was unable to withhold my political views, Riana explained that she felt like she and individuals had a responsibility to stay aware of their smartphone use, I prompted her saying "okay, an individual responsibility?" Although paraphrasing her own words, I broke her rhythm and may have subtly implied that I may feel others should also share this responsibility e.g. tech companies/schools/institutions, which I strongly believe they

should. I recorded both these instances in my research journal, recognising my own emotions on the subject led to a temporary lapse in awareness and concentration; I felt the process of journaling sharpened my awareness of my emotions during future interviews, preventing repetition of these types of mistakes. These instances may have further increased the power differential by subtly revealing my own views, increasing the Hawthorn effect (Adair, 1984).

Finally, I felt it would have been interesting to have interviewed the families and partners of participants, gaining their experience of the impact of smartphones on participant's wellbeing. This may have enabled other perspectives, experiences and insights on the phenomenon which I feel could be important given how challenging participants felt it was to develop and maintain an awareness of their own smartphone use. Due to the scale/timeframe of study and my priority of letting young adults' voices be heard and understanding their subjective experiences, this was not possible/advisable.

3. Analysis

3.1 Introduction

From my analysis, I have created a narrative account of my participants' interview data, aiming to answer the research question "*How do young people make sense of the impact of their smartphone use on their mental wellbeing?*". During analysis, I attempted to step into the participants' life world to obtain and present evidence of their sense making surrounding this question. To stay close to participant experience, no outside literature or psychological theory will be referenced in the analysis. I have presented evidence in the form of verbatim interview transcript extracts, which include repetitions and grammatical errors. An ellipsis within a quote indicates a pause in speech. An ellipsis between two sets of quotation marks means some text has been removed to improve clarity without reducing context. I have tried to include quotes and/or descriptions of quotes that provide context and illustrate the grouped experiential themes and subthemes as clearly as possible (Larkin et al., 2006). Quotes have been selected to be transparent and have never been taken out of context as not to detract participant meaning/intention (Larkin et al. 2006). Non-italicised text in brackets within a quote are used to provide context.

I have made sense of the participants' sense making throughout the analysis. This tentative interpretation always begins from an original verbatim quote shown in the analysis to aid transparency. Thus, both etic and emic perspectives have been utilised, attempting to stay close to original participant material, letting their voices be heard and avoiding psychological reductionism through reliance on pre-existing theory (Smith, 2012). However, the etic perspective is also adopted. The use of some external interpretation to generate deeper understanding and insight, perhaps unknown to the participant, is an essential part of high-quality IPA analysis (Smith, 2012).

The analysis produced five group experiential themes and 9 subthemes displayed in the table 2.0 below (see Appendix 13 for a comprehensive table of GETs with experiential statements, related quotes and participant pseudonyms). Although distinct entities, many themes are interconnected. At times the relationship between themes are discussed.

GET 1: Smartphones Are Complex: You Can't Separate the Good from the Bad Subtheme 1a: Trapped by your smartphone Subtheme 1b: Addiction or dependency?
GET 2: It's the seeing it! Comparison to Visual Media, Insecurity Exacerbation and Identity Distress
GET 3: Revolutionising Communication and Relationships Subtheme 3a. Unrealistic social expectations Subtheme 3b: Tension in relationships
GET 4: Connection, Freedom and Learning: The Positives of Smartphone Use Subtheme 4a: Connecting with family and friends Subtheme 4b: My smartphone is my teacher
GET 5: What You Don't Know Really Does Hurt You Subtheme 5a: Learning the hard way: Developing protective awareness Subtheme 5b: Awareness alone is not enough

Table 2.0: Table of group experiential themes and related subthemes

3.2 GET 1: Smartphones are complex: you can't separate the good from the bad

When describing how smartphone use impacts mental-wellbeing, a salient feature of all participant accounts was that the relationship between their smartphone (particularly social media (SM)), and mental-wellbeing was highly complex. Smartphone use is individualised within this sample, they're used in a plethora of ways. The participants understood some to be beneficial to their mental-wellbeing, and others detrimental. Many participants struggled with this complexity, in particular because the 'good' and 'bad' aspects of use were often inextricably linked within the same app/use

of the smartphone. Several participants referred to feeling ‘trapped’ by their smartphone, as they would need to sacrifice valued aspects in order to rid themselves of the detrimental effects. This is a particularly salient GET in the study as a whole, as it’s interconnected with all other GETs. Each GET is linked in some way to how participants feel their smartphone use is affecting their wellbeing, in almost every case there is no clear distinction of ‘good’ and ‘bad’, each is complex. Benefit and detriment are often understood as two sides of the same coin. Using a smartphone in a healthy way could be interpreted as a delicate and obscure balancing act.

3.2.1 Subtheme 1a: Trapped by your smartphone

Many of the participants felt trapped by their smartphone in some way, often due to the inability to notice that positive aspects of their smartphone use could also be detrimental to wellbeing in slightly different contexts, for example content viewed, mood, or use time. Alternatively, others were aware that when using a smartphone, good and bad coexisted within the same arena, but were unable to give up the good in order to relinquish the bad. A common example of this was valuing the newfound ability to connect with others instantly at any time, yet simultaneously feeling chronically stressed and overwhelmed by an inundation of messages and notifications. Eva expresses her dynamic and conflictual relationship with her smartphone:

“it feels like a kind of very exciting way of doing things that have never been possible before, and other times it kind of feels like you're kind of trapped within it, and so dependent that you can't get out. But I think what makes it so complex is that it's such a dual experience of good and bad.”

(p.1, l.18)

It’s clear Eva deeply values her smartphone, viewing it as a revolutionary tool, yet she also reports feeling ‘trapped’ and ‘so dependent’. She appears to be caught by her smartphone in some sense, unable to stop her use because of its value that would need to be sacrificed, yet unhappy to stay due to dependency and detrimental effects. There’s a sense of a complex, dynamic and challenging relationship with her smartphone that is difficult to manage. Referring to Instagram, she goes on to say:

“you kind of become trapped in the sense that you'll lose this virtual world you have created for yourself, which again is both good and bad. So, it's quite tricky once you've created it, to then leave.”
(p.1, l.39)

There's value in the effort Eva's expended in creating her own virtual world; something she's nurtured and developed and that belongs to her. There's a meaningful personal investment that would need to be abandoned if she were to stop using her phone, trapping her.

Below, Eva refers to how much she values increased connectivity and the ability to maintain important relationships. However, she now feels anxiety from needing to continually respond to those relationships. There's a strong sense of her internal struggle of how best to manage the enmeshed good and bad.

“it's not like there are separate parts that are good and bad, it's as if each element is both, and again, that's how you're so trapped and it's very hard, you can't just remove the negative that easily, because the two are very intrinsically linked.” (p.14, l.613)

Rosa encountered a similar problem:

“I would say I sort of dread it (smartphone use), like I sort of leave it in the corner of my room on silent not really wanting to look at it because like when messages pile up it sort of overwhelms me” ... “it's not like I don't want to reply to the individual messages because I really do.” (p.2, l.71)

The language Rosa uses to describe this phenomenon reminded me of a child frightened of monsters in the night - feelings of 'dread', her phone waiting in the corner of room, not wanting to look at it. Like a child scared of monsters, there's a sense of helplessness and being overwhelmed here, and an inability to solve the problem.

She goes on to say:

“I feel guilty for taking time for myself when I'm offline, when I'm online I feel like I'm wasting time, when I'm offline I feel guilty about not being online.” (p.7, l.353)

The driving force behind the pressure to remain online is seemingly guilt, created from a social expectation to reply or be online, as well as valuing the social interaction in smaller doses. Again, there's a sense of being trapped and helpless.

The complexity and confusing nature of the relationship to her smartphone is portrayed in the paradoxical statement below: she's 'free' yet 'somehow trapped'. The word 'somehow' is indicative of not fully comprehending the complex relationship between her smartphone use and mental-wellbeing.

Rosa: *"I feel free but also somehow trapped by it at the same time."* (p.1, l.44)

Brian echoes this sentiment:

"it (smartphone use) blurs, like blurs, it like, makes it slightly more ambiguous. It's not just a bad tool. It's not just this terrible thing, it's also positive." (p.3, l.95)

The language illustrates how emotive yet indistinct he finds the good and bad aspects of smartphone use. His repetition of 'blur', conveys the lack of clarity and ambiguity of the phenomenon, seeing parts of his smartphone use as a 'terrible thing' but simultaneously 'positive'.

Hannah also expresses difficulty establishing a healthy relationship with her smartphone:

"(I'm) kind of in a bit of a rut with like, smartphone use" ... "I get to speak to my mum every day"... "without it, I would be lost and I would be sad" ... "then there's, like the negatives" ... "feeling like anxious if I've got like, constant messages to reply to and also yeah, I think I wrote down like the constant feeling of always feeling like 'on'." (p.12, l.499)

This illustrates just how essential smartphone use has become to her wellbeing. Yet she also feels in a 'rut', implying a repetitive, negative pattern of behaviour that's difficult to change, i.e. anxiety, the pressure from constant messages, always feeling 'on', as if on-call at work. It's the very same capability - constant, instant communication, afforded to her by smartphone - that enables the close relationship with her mother, and the anxiety, pressure to reply to messages and always feeling on. Her absolutist language, 'constant messages' and 'always' feeling on, shows the chronicity of the issue, conveying a permanent inability to escape or truly be peaceful.

Riana also feels her smartphone use can feel like a trap. Below, she is referring to Instagram, primarily speaking about being trapped by social comparison, but drawn in by curiosity and a need to connect:

"I think it can feel like a trap sometimes, because it's kind of like I don't know how to explain it. It's kind of like you can see the bad but you're still drawn in and so it kind of feels like a trap like but you're like, oh, you know what, maybe I'll just like go and see for a bit but then you kind of get stuck in it, and it's hard to come out of it." (p.10, l.419)

Riana struggles to 'explain' the 'trap', suggesting that the mechanisms involved in creating these feelings are not obvious and can be challenging to describe. She gets 'drawn in', implying something pleasant tempts her, then she's stuck and can't get out. The nature of this phenomenon sounds sinister and insidious, as if her human psychology is being exploited, seemingly she is being lured into something she 'can see is bad' but is unable to resist, suggesting a lack of control.

Although participant extracts are individual and contextually different, there are common threads that run through them. They describe feeling trapped or in a rut. This seemingly emerges from finding value from a type of smartphone use which can then quickly become detrimental to wellbeing in different contexts, creating feelings of pressure, guilt, dread and anxiety. Furthermore, this phenomenon is obscure. Riana found it difficult to explain, Brian described it as ambiguous/ blurred, Rosa used oxymoronic language, free yet trapped, and Eva described the dual experience of good and bad as complex.

3.2.2 Subtheme 1b: Addiction or dependency?

This subtheme is very much connected to 1a. Being trapped is implicit within dependency and addiction. This subtheme is distinct as it focuses on either becoming dependant on smartphones due to their utility i.e., participants feel that functioning within society is now dependant on having a smartphone, or, becoming addicted their smartphones, conceptualised by participants as a personal loss of control over how much they used their smartphones. Two participants Brian and Talia used the term addiction to describe their relationship with their smartphone use. Eva, Rosa, Hannah and Riana felt the term dependent was more appropriate for their use.

Talia reflects on the effects of smartphone use and TikTok on her attention:

"I had more of an attention span for, like, reading books, or, or, or maybe just watching things... or maybe other activities" ... "I maybe like, probably am, you know, I am addicted." (p.5, l.191)

Talia describes a semi-perpetual state of distraction. Resultantly, she's no longer able to engage in fulfilling activities in the same way. She seems to be in the very process of recognising she's addicted to her smartphone going from 'maybe' to 'probably' to 'I am addicted'. It felt as if she was admitting it to herself in that moment. Perhaps her behaviour on a smartphone is so habitual and automatic, it is rarely reflected upon and in this moment of intentional reflection, she makes a conclusion.

Brian has similar but more pronounced difficulties with attention:

"it's like a reaction to stress or like a reaction to like, friction with work that then like my brains like, oh, this isn't nice, this is unpleasant. So I'm gonna like, divert you towards something that is enjoyable to do like scrolling." (p.4, l.152)

Brian's inability to tolerate negative affect (stress) seems to be driving compulsive smartphone use. Repetitive use of an external stimuli to escape/reduce negative emotion is the common pathway in addiction development. I was struck by his sentence formulation and language, 'my brain' used as the subject as opposed to 'I/I'm'. This speaks to the unconscious nature of his smartphone use, as if his brain is making him engage in things he's not consciously aware of, like an impulse or instinct, which interferes with his intended behaviour.

He goes onto speak of the consequences of this phenomenon on his wellbeing:

"that's when you start getting anxious as if like, you're struggling with work, that you feel yourself constantly doing this thing (smartphone use) that you know is bad for you, but you can't really, it's like almost like an impulse, like, you can't really stop it." (p.12, l.498)

He describes an inability to stop 'constantly doing' something he 'knows is bad' for him, a hallmark of addiction. His repetition of 'you can't' (stop) emphasises the loss of control he's experienced. His words and emotion convey a strong sense of powerlessness.

Unlike Brian and Talia, the other participants don't use the word addiction, but rather describe themselves as dependant. This is often a functional dependency, relying upon their smartphones to do things, for example to travel, socialise or work, as opposed to compulsive use.

Eva: *"I don't know for me personally if addiction is quite the right word, I think there's definitely a dependency, because I've established a lot of relationships through SM."* (p.15, l.690)

Eva: *"I think specifically for my age group, and being going to university, and those kinds of institutions they depend quite heavily on SM to function in terms of the social life of them."* (p.2, l.90)

In the two extracts above Eva, discusses how she and her university have become dependent upon SM to establish and organise social relations. Institutions like universities relying on SM make it harder for her reduce her dependency if desired. Quitting SM, for instance, would mean missing out on university events. Thus there is societal/institutional reinforcement of dependency.

Rosa also describes a dependence on her smartphone for socialising:

"I feel completely lost when I don't have my phone on me, like I always have it on me...I feel dependent on it but very begrudgingly dependent on it, like I don't want to be, but without a doubt I am." (p.2, l.81)

Rosa describes a deep attachment to her smartphone, however, she seems to resent how much she needs her phone, a 'begrudging' dependence. The resentment may be present as there are aspects of her smartphone use she finds extremely troublesome as referenced in subtheme 1a, yet there is almost a requirement to have one in order to adequately socialise amongst her peers at a crucial age of social development.

Riana and Hannah express similar opinions on being dependant on smartphones for functioning.

Riana: *"Really hard! Yes, it's really difficult (to be without a smartphone). I think I am quite dependent on it, I would feel quite lost" ... "Everything's on the smartphone today. I mean, I didn't say this earlier but I use Google Maps for everything" ... "So, I would get up and I would feel so incapable of just figuring things out on my own."* (p.26, l.1107)

Riana's strong emotive language conveys the extent of her deep dependency. It would be 'really hard!', she would feel, like Rosa, 'lost' figuratively and literally (without Google Maps). Riana is reliant on her smartphone as 'everything is on a smartphone today'. She has lost skills in navigation and problem-solving, as if her smartphone is becoming an extension of herself, taking over certain abilities/roles she used to do herself.

Hannah: *"we are so reliant... like Google helped me for the most simple things and I feel like you can become lazy. Kind of like a limb, isn't it? You lose it. And you're like, oh my god, like, I'm limbless. I'm alone. It is your life and it's sad that it is, I kind of hate that it is. But it is just the way that it is."* (p.5, l.77)

Above, Hannah takes this idea further, literally saying she's 'limbless' and 'alone' without a smartphone. Yet, she's also resentful of this deep integration with technology. She recognises that she is losing her capabilities through laziness but also seems resigned to this process - it's 'just the way that it is'. This is perhaps a response to the integration of smartphones on a cultural/societal level. They are becoming essential to function, whether she likes it or not, creating a forced dependence.

Rosa: *"everyone like constantly uses it no matter what" ... "because everyone's sort of addicted."* (l.1134, p.21).

Eva: *"the original intentions of SM were were not to have the whole world addicted and to affect mental health in a negative way."* (l.649, p.14)

Above, Rosa and Eva comment on how pervasive smartphone/SM addiction is in their social worlds, despite not feeling addicted themselves. Their absolutist language speaks to the severity and ubiquity of the issue – everyone uses smartphones 'no matter what', and 'everyone' and 'the whole world' are addicted.

3.3 GET 2: It's the seeing it! Comparison to Visual Media, Insecurity Exacerbation and Identity Distress

This GET focuses on smartphone SM use, in particular the role of visual media in constructing an often highly idealised virtual world with little real-world context. Participants would naturally compare themselves to other SM users and the objects of visual comparison were typically peer and influencer profiles. This had several implications on participant wellbeing including increased anxiety,

low mood, exacerbating insecurities, feeling left out/isolated from peers (fear of missing out, (FOMO)) and affecting self-esteem and identity. Negative comparisons were compounded by the objects of comparison being partially constructed, either through SM-users selecting only desirable images, showing the best parts of their lives or by editing the images to make them more desirable e.g., beauty filters/airbrushing, creating an unrealistic representation of their reality. Participants also described a lack of context as being detrimental to wellbeing. SM shows a snapshot of reality, leaving users to guess surrounding context, often in negative states of mind, for example, assuming peers don't like them or are excluding them upon seeing images of peers at an unknown social event. This combination of constructed visual imagery and lack of context surrounding it seemingly had a detrimental impact on the mental-wellbeing of many participants.

Eva reflects on the unique impact of visual media on her wellbeing:

"I would say the photos, and the visual aspect of SM is the most damaging ... hearing about it doesn't have as big of an impact as seeing it... there's something about the visual side of it that kind of almost goes a bit deeper, and people might feel fine about something (social events/body images)" ... "then they see the photos of it, and it affects them in a deeper way." (l.271, p 6.)

Rereferring to FOMO, she goes on to say:

"I think it's also seeing them (images) in live time." (l.424, p.10)

Eva feels the visual and temporal nature of the information is more damaging than the information itself. The change in medium alters the meaning of the information; she's 'fine' knowing social events happen without her sometimes and that others possess culturally idealised bodies, until they're viewed visually in real-time on SM, eliciting stronger emotional responses and 'upward' social comparison.

Eva goes on to explain: *"photographs these days are so constructed and then also the construction that you yourself make when you see them" ... "but in the end, the feelings that you have make it a lived experience regardless of how real the images are or not." (l.436,p.10)*

Upon seeing a partially-constructed image (edited/filtered/selected), Eva recognises that she then makes her own mental construction, likely in a negative emotional state upon reacting to the image, about what the image means. She constructs a story around it, perhaps something like 'my friends

didn't want to invite me'. This multi-layered construction of image, then interpretation of image, is now even further from a true representation of reality. Eva is clearly aware of this process but is still affected by very real, likely automatic emotional reactions upon seeing the images. She sounds almost resigned to this fate when she says, *"but in the end"*, as if all her reasoning and understanding of the phenomenon is futile in the face of potent emotional reactivity.

Eva: *"everything it shows you isn't things, you know, you're unaware of, but the seeing it! It's almost like we weren't ever designed to see these things, and now we have the ability to it's quite unsettling."* (l.293, p.7)

Above, Eva seems to be struggling to come to terms with the dissonance between her emotional reactions and rational thought. When she exclaims *"seeing it!"*, her emotional tone communicated the shock and pain she's previously felt upon seeing unexpected images. It felt like there were parts of her life such as knowing peers socialise without her, that sat comfortably in the background, which become distinctly uncomfortable when forced into the foreground. She appears to find the ability to see (potentially thousands) of idealised/edited profiles/photos in real-time unnatural, as if human beings weren't 'designed' to receive information in this way, triggering challenging emotional reactions dissonant to her rational thought and awareness. There are parallels here to Riana when she describes body image comparisons on SM versus the real-world.

"I can like really easily fall into comparisons" ... "with like body image" (l.200,p.5)

"I don't know how to explain this, I can appreciate beauty more in the real world, rather than then making it about me and saying, oh I wish I had that" ... "you get kind of exposure to everything, whereas SM is so filtered" (l.319, p.8).

Riana also feels SM creates distinctly different feelings to off-screen reality, appreciating beauty more in the real-world without the same envy and self-comparison. She finds this difficult to explain, suggesting an obscurity to the differences that she's still making sense of. She suggests SM is 'so filtered' It's designed to show you idealised/edited portrayals of people's lives, which is again unnatural. There's a unique showiness to SM, content has been uploaded specifically for others to see, with thousands of profiles in one place, priming for socially-comparative behaviour.

Riana, Rosa and Hannah believe that constant self-comparison on SM has impacted their sense of identity.

Hannah: *"it's a comparison thing, isn't it?" ... "my hair doesn't look like that, or my body doesn't look like that, should probably start going to the gym more or just negative thoughts on your own body."* (l.700, p.17)

Above, Hannah discusses the impact of viewing 'Insta-models' (Instagram profiles for models), causing social comparison that leads to self-criticism in the face of idealised beauty standards. There is a sense she's rejecting who she really is, wanting her authentic self to look/be different, feeling she 'should' be doing certain activities more. Below, she discusses how excessive comparison can lead to identity formation issues:

"What do I like doing? Like notice what you like, what makes you happy instead of trying to be that person, because you're not that person." (l.714,p.17)

Over time, comparison on SM seemingly impinged upon her ability to recognise and develop her authentic self, likes and values. She conveys being caught in a world of comparison, thinking she needed to be someone/something else, something closer to perfection, albeit a false, constructed perfection. SM facilitated/enabled self-doubt and criticism, and ultimately obfuscated full contact with her true self, obscuring her identity during an important developmental life-stage.

Hannah goes onto say:

"Why are we doing this? You can literally edit your photos and I think that's just awful." (l.755,p.18)

I wondered what it must be like for Hannah to edit photos of herself, creating a desired but false version of herself, yet still encountering her real self in the mirror each day. What feelings would this create? I can deeply sympathise with Hannah's concern here, SM seems to be exploiting (not necessarily intentionally) the human propensity to self-compare, using features such as editing, filters and airbrushing to supercharge this behaviour regardless of its effects.

Similarly, Riana exclaims:

"I think you're still constantly comparing yourself to others ... (you) probably don't know what you like, what you don't like, who you are and that can be quite difficult." (l.867, p.20)

Riana feels that SM comparison interrupted her development of a sense of self. The word “difficult” implies a struggle – I interpreted this as the struggle between a ‘truer’ healthier identity development versus one impeded by “constant comparison”, born of a desire to fit in, be accepted, popular, high-status, beautiful or any other characteristic prized by SM culture, but not necessarily prized by the individual, creating identity dissonance.

Rosa echoes these sentiments:

“I think it (SM) can really change the trajectory of your personality even.” (l.685, p.13)

Several participants viewed a lack of context around visual media as amplifying the impact of self-comparison and worry, i.e., no context relating to images being edited/idealised. This created feelings of envy and of being less than. FOMO was also deeply enhanced by a lack of context, leading participants to create their own context in a negative state of mind e.g., ‘I’ve been rejected or lied to’.

Rosa recounts feeling deeply hurt and left-out upon viewing media of friends doing an activity without her that she’d planned with them:

“it was like a three-minute video and I was just fixated on that one frame of the video” ... “I stared at it for like so long, and then it just makes all of the doubts and insecurities... and it’s like every worst case scenario comes to mind.” (l.912,p.17)

After deliberation, Rosa confronted her friends and realised there was a logical explanation. The extract shows how quickly she created her own context of ‘worst case scenarios’ about herself and her friendships. This circumstance was reconciled as she spoke to her friends, but she acknowledges that this often isn’t the case as she finds confrontation difficult, later saying:

“I didn’t wanna sound like a whingey friend.” (l.927, p.17)

I wondered how many other unacknowledged scenarios she’d experienced over the years that propagated self-doubt, insecurities, or tensions due to misinterpretation/lack of context.

Talia succinctly summarised the issue of lack of context:

"I just can't stress enough of how like easy it is to misinterpret pictures." (l.684, p.16)

Consuming vast amounts of constructed visual-media with little context led most participants to self-compare, an overarching consequence of this comparison reported by all but one participant was a pervasive and indiscriminate exacerbation of insecurities. Eva describes this below:

"every person has things that they are insecure about, and I think SM exacerbates anyone's insecurities, whether it's an insecurity about your appearance, your body, your money or class, your friends, your education, whatever you feel kind of that you're not satisfied with within yourself." (l.227,p.5)

Eva's description implies nobody is safe, whoever you are and whatever your insecurity is, SM can exacerbate it. Logically this makes sense, Eva can consume effectively limitless content on SM over long time periods, eventually, she will likely stumble upon or seek out something she's insecure about. Eva may have a natural propensity to devote a disproportionate amount of her attention to objects that feel threatening such as insecurities, which will in turn be recorded by SM's algorithms, and thus more of that content will be directed towards her. This is a similar phenomenon to the natural process of worry, except with additional, powerful (partially constructed) visual, temporal and auditory media, intentionally and disproportionately directed to you. An effective mechanism for exacerbating insecurities.

Riana speaks to this:

"I've been suffering with acne because of kind of, like, like hormonal stuff ... that's quite a critical thing that is impacted by SM" ... "I think it just depends on what part of me I'm not that happy with and then that's triggered quite directly." (l.267,pg.7)

Rosa, echoes these sentiments:

"it sort of sees what you're primed to become obsessed with and it like feeds you so much of that content that you're forced down the alleyway of that specific obsession." (l.649,p.12).

Rosa anthropomorphises SM, it "sees" and "feeds" and "forces" her. In reality, it is an algorithm responding to data input. The anthropomorphisation speaks to what it really feels like for her as a user, she's up against something powerful, cunning, perhaps conscious that is actively working against her. Interestingly, the algorithm is actually the object being fed by her own mind and behaviour, although that is not to say it cannot thereafter influence her thinking and behaviour.

There is a sense of powerlessness and non-consent captured in the words *“it feeds you so much”, “you’re forced”*.

Rosa describes the lasting effect this process has had on her over the past 5 years:

“I think body image has been like one of the biggest ones for me” ... “I’m still carrying a lot of the sort of things that arose when I first started using SM which have sort of like continue to now.” (l.1008,p.19)

She described how SM exacerbates insecurities, but her language implies it may have also had a role in creating them, as difficulties with body image *“arose when I first started using social media”*, and *“continue to now”*. Perhaps SM could also be involved in creation of insecurities.

Similarly, Hannah links body image insecurities to SM comparison.

Hannah: *“body image and comparing yourself, it can so quickly just turn into something like out of control ... being exposed to that constantly on the daily is unhealthy. Definitely, It makes you feel yeah, super insecure.” (l.752, p.18)*

Hannah’s description of the process indicates how difficult it is to avoid these consequences, as ultimately self-comparison is a natural part of human psychology, but then *“quickly”* it’s *“out of control”*, and exposure is constant for Hannah, leaving little room for respite or reflection.

Similarly, Riana speaks to a loss of control, a *“spiral”*, when discussing the development of health anxiety after the passing of her father. This case is slightly different as it’s not technically comparison, but rather an over-exposure of health-related material on SM enhanced by visual media, leading to checking behaviours and increased anxiety. This goes beyond usual health anxiety checking behaviour as she is not actively seeking the information. Rather, it would spontaneously *“come up”*. As Rosa said, SM *“feeds”* and *“forces”* you down an alleyway of obsession.

Riana: *“every time it would come up (on SM), I’d be like, oh my god, maybe I need to check this and maybe I have this and like, I wonder about this, and it will be a spiral... then I’d just be anxious the whole day.” (p.15, l.649)*

Below, Brian recognises that his insecurity at the time, social isolation, was exacerbated by SM, again, seemingly exploiting human psychology – our proclivity to focus on threat and to self-compare. This creates pain for the user but ultimately, it keeps them using the smartphone/app, leaving only a moral rather than financial incentive for SM companies to intervene.

Brian: *"it massively exacerbated my loneliness; it made me feel more lonely, seeing other people together."* (l.614, p.16)

3.4 GET 3: Revolutionising communication and relationships

Smartphones' unique computing power and portability enables instant, 24/7 communication. Participants reported that this has revolutionised communication, fundamentally changing it. Participants experienced many positives from this change, outlined in GET 4. However, detrimental effects to wellbeing were also expressed, as separating the good and bad isn't always possible (GET 1). Participants felt that the ability to communicate instantly at any time had created new social expectations and norms around communication and relationships, which impacted their wellbeing.

3.4.1 Subtheme 3a. Unrealistic social expectations

Many participants described feeling a constant, underlying anxiety due to the formation of the new social expectation of being constantly available, manifesting as chronic pressure to be online and reply to messages instantly, as well as the experience of guilt if unable to meet these expectations. This subtheme focuses on the emotions caused by social expectations for participants, predominantly chronic anxiety and guilt and also their ideas surrounding the formation of these new expectations.

Eva: *"The thing that I personally find hard and anxiety provoking is the expectation of constant communication" ... "it's not something I feel like I can always fulfil" ... "something that I think gives a kind of constant low level of anxiety."* (p.7, l.314)

There's a sense Eva disagrees with the expectation of constant communication, recognising it as unrealistic, yet still feels emotionally affected by it. Disagreeing with a social norm at a fundamental level doesn't give her freedom from the anxiety it creates. She lives in a reality where the social consensus is to constantly communicate, doing otherwise is in some sense stepping out of line.

Rosa experiences similar pressure:

"if you're out or something, people would still expect you to pick up the phone no matter what you're doing" ... "I'm just always sort of scrambling for, I feel like I have to sort of give a, give an excuse. You're like obliged to be active." (l.211, p.4)

There is a sense of desperation here, she's "scrambling" for an excuse. It's curious how this phenomenon has emerged for Rosa. Being out or simply not being in the mood to communicate does not qualify as a valid excuse, she is implying that she may be lying to peers at times to escape the pressure of expectation. Her absolutist language 'no matter what' is indicative of the force of the pressure she feels, she describes the collective pressure from her friends in a similar way someone might describe an authoritative and demanding boss asking too much of them.

Similarly, Hannah experiences great overwhelm due to new expectations. She describes guilt as driving the pressure to respond:

"I think it's like the guilt, isn't it? Because you don't want them to feel ignored" ... "that's not a personal thing at all, it's just... if they just popped up out of nowhere, if we had like, some sort of ability for that I, you know, I might not be in the mood to chat!" (I.301, p.3).

Like Eva, Hannah seems to fundamentally disagree with the emergence of this new expectation but still suffers its consequences – anxiety, overwhelm and guilt. She experiences her peers' right to be acknowledged and responded to as outweighing her own right to privacy and uninterrupted time. Yet she seems to simultaneously acknowledge this as ridiculous, likening the scenario (if only it weren't over a smartphone) to people randomly popping up in her room expecting to talk.

Some participants went on to describe why they felt these anxiety-provoking expectations initially evolved, often referring to specific features within SM apps that encourage social norms of constant communication and the erosion of personal privacy. Below, Eva describes the impact of particular features of Snapchat.

"(Snapchat) has an emphasis on exactly how long ago (to the second) it's been since the person's replied and even something as simple as that has created this whole atmosphere of like, the pressure that you must reply in a certain amount of time... you have to make such a conscious effort to kind of fight against it." (I.1000, p.22)

Eva believes that features like displaying reply times, subtly stress that reply time is important, which ultimately lead to the creation of social norms and related pressure and anxiety, encouraging smartphone use. Each SM app has a cluster of these features to encourage increased use, as

increased app use is an investor funding criterion. Eva seems to view this phenomenon as insidious; a real 'conscious effort' must be made to mitigate these harmful effects. In her previous comments she implies 'fighting against' the expectation is not straightforward, as not replying makes her feel chronically anxious. Perhaps, a collective awareness of the issue is needed as social norms impact Eva's wellbeing. Even if she personally disagrees with them, many others do not, and being accepted by her peers is essential to her wellbeing, thus changing the social norm itself may be necessary.

Talia is also concerned with features of Snapchat:

"the thing that more unnerves me is that on Snapchat, you can sometimes see someone's location. it's like, you're like tracking someone in a sense" ... "like you're trespassing on something that you shouldn't know." (l.979, p.23)

Talia's language 'tracking' and 'trespassing' likens this ability to illegal activity; there's a sense she feels it's deeply wrong. Although different to Eva's point, broad parallels can be made - the app creates expectations that subtly erode individual privacy and personal space, whether it's the expectation of constant/instant communication or knowing exactly where someone is in real time.

Rosa also has concerns with the 'active' symbol on Instagram:

"when you turn it off a lot of people call it like shady or sneaky because it sort of means you're trying to ignore everyone, like that's something to get mocked" ... "the little jokes sort of express what people actually feel." (l.424, pg.8)

Rosa describes a scenario where the user has a choice to turn off the function (many apps offer this to some extent), yet curiously her peers enforce the new social norms by making jokes, name calling and mocking her. Seemingly a social precedent has been set that can't simply be 'turned off'. The use of the words 'sneaky' and 'shady' give a powerful sense that her peers believe they have a right to know if Rosa is 'active' and therefore contactable, which surmounts her right to anonymity online, which she feels she needs to feel less pressured. Again, there is a sense that Rosa is trapped.

What is less clear from participant extracts is how these social precedents are emerging. It seems likely that they are influenced by particular features of SM previously described, but although there is often an option to disable these, the social norms still persist. What is clear from participant

accounts is the power of majority rule in impacting their feelings and behaviour. Being accepted is a human need, creating pressure to conform to social convention, even if the participants are aware that it is actively harming their wellbeing. This could again be interpreted as a form of trap, with SM users caught between the fundamental needs for social acceptance and personal privacy. The two seem unable to coexist in the context of smartphone use for many participant.

3.4.2 Subtheme 3b: Tension in relationships

Many participants described tensions arising in their relationships as a consequence of new social norms/expectations and subsequent pressure and anxiety generated from increased connectivity afforded by smartphones. This subtheme focuses on the direct consequences of novel social expectations on participant relationships, including relationship maintenance, shared values and relationship formation.

Eva: *"I think it's definitely put pressure not just for me individually but on, SM has put pressure on everyone's relationships to be a certain way, because it's so easy to to contact people now. I think it's kind of revolutionized relationships between everybody."* (l.844, p.19)

The importance Eva places upon this issue is clear when she describes relationships with friends who share her views on SM's unrealistic expectations as:

"some of my favourite relationships, because it's very nice to have that pressure alleviated." (l.853, p.19)

Similarly, Rosa also views a shared understanding of SM expectations as a very important quality in a friendship:

"I think it's important to find people who have the same sort of definition (of SM expectations) so you don't have unequal expectations of what a friendship can be because obviously that could create a lot of problems in a relationship." (l.151, pg.3)

These extracts speak to the extent to which socialising now takes place online, SM etiquette has significant weight in determining the success of friendships, similar to desirable/undesirable features

of personality. However, unlike other desirable features of personality, for Rosa and Eva, having desirable SM etiquette means sacrificing their own privacy and mental-wellbeing. As described by Rosa:

“people associate being a good friend with being available all the time” ... “I find that really difficult because I like to prioritise my own sort of peace of mind.” (l.133, Pg.3)

Like Rosa and Eva, Hannah has struggled with the expectation to reply, creating feelings of guilt, anxiety and leading her to make excuses as to why she’s not contactable. Again she feels this new stressor has had serious implications in her relationships:

“Yeah, (SM expectations) impacted relationships and distance me from people.” (l.982.p23)

Talia also feels her relationships have been impacted but conversely to other participants, feels upset and rejected that her peers do not contact her enough. Below she describes how seeing that people have read her messages, through the ‘blue tick’ function on WhatsApp, and not responded has impacted her relationships.

Talia: “like just seeing when people can read your messages” ... “it does impact how I feel about friendships.” (l.434, p.10)

Talia feels rejected and puzzled by these experiences, these painful feelings may unknowingly be causing her to engage in dynamics with others, that in turn, make them feel guilty, anxious and pressured. Tension and difficult emotions thus seem able to arise whether placing or receiving expectations on SM.

Although Rosa was one of the participants who spoke most about feeling pressured to respond, she recognised that she can also behave in the same way as her peers:

Rosa: “there is another side of the coin, like if I’ve sent some important messages to one of my friends and they’re active and won’t respond to them then I’m exactly the same and I’m very aware of that and I really dislike it when I do it but it’s hard to not feel annoyed that they’re not responding to you so it just creates this whole sort of like tension even though like nothing’s happened.” (l.271, p.5)

Rosa's description speaks to the power of her instant emotional responses, she is very aware of how much she dislikes the pressure to reply, yet can't help but respond to peers in the same way if she's ignored online. Her awareness of her actions seems to create self-judgment, she 'really dislikes' her own behaviour. Lack of context again seems to be an issue; it's hard for Rosa not to feel annoyed because she doesn't know the reasons behind their lack of responsiveness and has been primed to expect an immediate response, leading to negative assumptions and tension in her relationships.

Smartphones have fundamentally changed how participants communicate and what is expected from friendships. Features of SM apps have by design, encouraged these changes to increase use of the apps. This has brought about vast increases in connectivity with many benefits, but alongside anxiety, guilt, overwhelm and largescale relationship tension.

3.5 GET 4: Connection, Freedom and Learning: The Positives of Smartphone Use

A profound benefit that smartphones enable, which every participant mentioned, is the ability to develop, maintain and enhance connections with others. Constant, instant messaging and visual media were specifically mentioned as being important in enabling this. Improved connectivity with friends and family were commonly cited as the most meaningful benefits, particularly if in different countries. Some participants felt that their smartphones had enabled completely new ways of living. The ability to maintain relationships despite physical distance, allowed participants the necessary support networks to feel confident moving abroad and studying in different countries, which they felt would not have been possible without access to smartphones.

3.5.1 Subtheme 4a: Connecting with family and friends

Hannah describes the importance of smartphone facilitated connection to family and friends:

"But when you boil it down, like I get to speak to my mom every day having moved to London and moved out of home, she's able to send me pictures of Mitzi, my dog, you know, like, obviously without it, I would be lost and I would be sad." (I.502, p.12)

After listening to many serious detrimental effects Hannah had experienced from smartphone use, I was surprised to hear her boil down the phenomenon so simply – she would be 'lost and sad' without it. This speaks to the complex relationship she has with her smartphone and the tremendous value she gains from it, despite the drawbacks. Constant communication and visual media have

previously been described by Hannah and others as very harmful to wellbeing, however in this context, they're incredibly valuable. They keep Hannah grounded, connected to her family, home and culture during the difficult transitional period of moving cities, promoting her personal freedom and autonomy. Yet the same functions used in a different context make her feel trapped and pressured. Complexities like these seem to make controlling smartphone use and using smartphones in a healthy way very challenging.

Similarly, Talia describes the enormous value of speaking to family and friends abroad:

"especially with like video as well" ... "I got to see one of my cousins who live in Canada have like they have they just had a child and it was like obviously I haven't actually ever been to Canada and I, you know, I don't know when I would have seen this person" ... "it's such such a nice thing to see their faces and like talk to them." (l.837,p.20).

The ability to stay in touch with family abroad and see and communicate with a new baby relative, in real time, were profoundly important events to participants. Without the technology, it's possible Talia would've never met this new family member until years later, by which point the chance to experience them as a baby would be lost forever. It's also possible she would not be in touch with her Canadian family, as she has never been to Canada since they moved 15-years ago. Talia emphasises the importance of the visual component, 'especially video' and being able 'to see their faces'. Like Hannah, this is juxtaposed to Talia's previously described problems directly relating to visual media. As Eva previously stated, visual media 'goes a bit deeper'; whether this is positive or negative appears context dependant.

Below, when describing the ability to communicate with people abroad, Talia seems deeply thankful for this newfound ability, her emotional tone came across as genuinely grateful.

"that's an amazing thing that like would have never happened before." (l.818, p.19)

Rosa describes maintaining a relationship with her oldest friend through SM who moved abroad:

"I would not of kept in contact with her whatsoever without SM ... it's being able to talk to people being able to constantly communicate with people who you might not be physically close to... you see everything they do...there's something a little bit different about seeing a post that you think is a bit

funny, or has an inside joke from your friendship and you can send it to them, like maintaining those small gestures is what really feels like I'm keeping connected." (l.513, p.10)

Rosa feels there are specific benefits to SM communication such as sharing posts they both understand or find entertaining. There seems to be something special to her about this form of communication; it's adding something more to their relationship, enhancing connection. Rosa is also able to follow and see 'everything' her friend does as she grows up, bridging the gap of physical distance and making reconnection in person easier. This special friendship, her oldest friendship, was maintained through access to smartphones, adding a sense of constancy and stability to Rosa's life.

Similarly, Eva sees tremendous value in the ability to maintain friendships abroad:

"there are lots of relationships I've been able to keep that I probably wouldn't have been able to otherwise, particularly with people from different countries, and I've always had quite a broad variety of international friends and that is, I see it as a huge benefit." (l.597,p.13)

Smartphones are enriching participant's lives by affording them connection to a range of different people from different places and cultures, adding variety and diversity to their world. Brian and Riana feel that keeping support networks no matter where they are, has brought new freedom to their lives, allowing them to explore the world, expand their horizons and engage in new experiences.

Brian: *"especially because all my family is in Canada, Smartphones definitely helped me stay in touch with my family more like we're all super like, we're super close as a family and chat all the time" ... "I think it enhances relationships with people."* (l.947, p.22)

Brian was able to maintain a very close relationship with his family after moving from Canada to study in the UK, he goes onto to explain below, that it's the accessibility of the smartphone that enabled this connection.

Brian: *"I think it's mainly like the, because the ability to message that quickly, a lot of the time comes from your ability to access your smartphone" ... "I think it's much more common now for people to lead, like, more dispersed lives with having support networks that are much further away than before" ... "I don't have like a massive support network in Oxford, but I don't like I don't find that an*

issue at all because I'm so connected to friends and family elsewhere, yeah, which is probably down to the smartphone" (l.977, p.23)

Brian's smartphone has afforded him great freedom through enhanced connection with huge implications – enabling him to study abroad, experience different places, cultures and people whilst still feeling close to his family and loved ones thousands of miles away. Brian's smartphone enabled the profound benefit of enhanced connection to friends and family, yet, in GET 2, Brian reported that SM smartphone use 'massively exacerbating' his loneliness when abroad. What is unclear is in what context smartphones are enhancing relationships and connection or exacerbating loneliness. Could this be related to specific uses of smartphones or perhaps Brian's emotional state or life circumstances? These seem important questions to answer in order to understand and promote healthy use.

Riana shared similar sentiments when describing what life would be like without a smartphone:

"It would be really hard, I think, I anyway do struggle quite a bit with being so far away from home. So, if I was to take away that constant, easy way of checking in and talking to them, seeing them, I actually don't know if I would have been in this country this long, to be honest. For me, it's yeah, I just think being able to see them every day is a privilege and smartphones gives that." (l.116, p.3)

Smartphones have afforded Riana an invaluable constant source of support and have had a profound impact on her life trajectory, offering new freedoms and choices. She views the technology as a 'privilege', expressing deep gratitude. There is again an emphasis on visual media, as she repeats the word 'see'/'seeing'. It's unclear if this is through SM, photos or video calls, but again the impact of visual media on wellbeing appears highly context dependant.

Riana goes onto to describe further support she's received from unknown communities on SM who share common difficulties, in her case grief and physical health groups:

"having this kind of community of people who've been through a certain experience, you don't feel alone, you kind of feel like oh there are others who know what is going on for me." (l.479, p.12)

This diverges from other participants' experiences of connection and support, but for Riana's specific problems, finding SM support groups has helped to normalise her experiences, provide a sense of

shared understanding, support and community which is constantly available when required. It may even be beneficial for her to communicate with individuals outside her immediate social circle but who share a common difficulty, similar to a therapeutic group.

In sum, participants feel that despite the negatives of smartphone use, increased connectivity to family and friends and communities is often seen as an irreplaceable benefit, enabling the formation, and maintenance of valuable relationships which in turn afforded some participants the freedom and confidence to travel, live and study abroad and move cities. Interestingly, many of the features that were cited as being most important for enhancing connection were also viewed as some of the most detrimental aspects in different contexts, for example, constant instant communication and the damaging effects of visual media. Separating the good and bad (GET 1) is no simple task when what participants least like about their smartphones is simultaneously what they value most in slightly different contexts. For example, Rosa struggled with comparing herself to her friends' pictures yet also deeply valued being able to see 'everything' her oldest friend had been doing. I was struck by the continuous references to enhanced connection, instant communication to friends and family and maintenance of relationships, whilst simultaneously being aware that the participant demographic is experiencing increases in loneliness and social anxiety. Although the sample is too small to generalise, I wondered if increasingly moving communication online is replacing potentially more meaningful face-to-face communication and physical touch, or if people are in fact more connected but do not feel it due to FOMO and a constructed reality where it appears everyone is more connected than you.

3.5.2 Subtheme 4b: My smartphone is my teacher

Other benefits of smartphone use reported by participants were exposure to new experiences, the development of skills and passions, and feeling their lives were made easier through smartphones' utility, reducing stress and saving time.

Talia and Hannah discuss the impact of SM on developing and expanding their interests:

Talia: *"it has shown me videos of things that I wouldn't have known about, maybe exhibitions or stuff that I've managed to go to with friends" ... "It's giving me a joyful experience."* (I.92, p.3).

Hannah: *"I created like, a creative Instagram. Because I'm into, like, photography and fashion styling, et cetera, so turned that into, tried to turn it into like positive scrolling. So, I have a separate*

Instagram where all I follow is like photographers, stylists, artists, hair and makeup artists and I just, like, get lost in a world of that now.” (I.591, p.14)

Both participants are describing beneficial experiences that would not be possible without smartphones which enable new ways for them to learn, grow and socialise seemingly having profound implications for wellbeing. Hannah reports getting ‘lost’ in her passions, indicating deep focus and absorption or a state akin to ‘flow’. Hannah seems to be gaining a deeper understanding of how she can use SM in a healthier way by setting up a new account designed only for developing her passions and ‘positive scrolling’.

Eva describes learning make-up artistry:

“But over the time I’ve learn that skill and it’s brought me immense satisfaction, and enjoyment, and I’ve been able to use that skill in lots of different contexts that I’ve really enjoyed to the point where I even considered as a part-time job, being a makeup artist. And I learnt 100% of what I knew from SM.” (I.640, p.14)

Eva honed this skill to such a degree she even considered it as a career option, this is indicative of the quality of education that’s available on SM. It’s clear how meaningful mastering this skill was from the expressive language she uses, ‘immense satisfaction and enjoyment’. There is a sense she’s gained confidence in her own abilities and feels enriched from the experience.

Rosa has also developed new interests:

“there are interests that I have that I don’t think I would have developed without SM, like there are books and stuff I love to read but I wasn’t that into reading when I was younger but” ... “all of my posts on the explore page (Instagram) are all about reading and it’s a massive community and there’s an app where everyone reads the same books.” (I.700, p.13)

Rosa is gaining a benefit from her community, similar to a book club, whilst simultaneously developing a love of reading. Rosa and other participants have developed new skills and interests, broadening their horizons through SM. The free accessibility to this wealth of information, tuition and community is greatly valued by participants. Prior to smartphones and SM, they would have needed to join book clubs or makeup artistry courses to obtain these experiences. Now they’re a few

clicks away. The vastness and breadth of SM seems important here as participants were able to develop a range of skills and interests that suited them, whether that be photography, fashion, reading, make-up artistry or art exhibitions. This technology fosters inspiration, creativity, education and joy in participants. However, it seems likely that the same process that enabled the development of new interests and skills is also responsible for exacerbating participant insecurities (GET 2), i.e., algorithmic positive feedback loops designed to show the user content they are likely to be interested in based on previous online behaviour. The algorithm can only register quantifiable variables like time expenditure or click number, it cannot gauge if users are excessively worrying or are engrossed in a new interest.

Riana and Brian felt that their smartphones were incredibly useful, helping them to function and make their lives easier:

Brian: *"I booked my Trainline tickets all the time" ... "mobile banking, like these things have become like, it makes it so much easier to interact with the world almost. Like without mobile banking, and without the ability to buy train tickets on your phone right then and there or without the ability to use the NHS app, or like Uber Eats."* (l.1155, p.27)

Riana: *"I think like payments, you have your cards on your phone today, It's so accessible. I think the accessibility and the convenience it brings is so important" ... "everything's like a touch away."* (l.1134, p.27)

Smartphones makes life more convenient, efficient and easier, saving participants' time. However, a concern is what the additional free-time is then used for - is it instantly claimed back by the smartphone? Brian, in particular, struggled to keep his smartphone use below five hours per day, often feeling he was wasting his time and regularly becoming distracted from the things he really wanted to do (GET 1b). Again, the smartphone seems to be a doubled edged sword, giving increased efficiency and productivity with one hand and taking it away with the other.

3.6 GET 5: What You Don't Know Really Does Hurt You wellbeing

3.6.1 Subtheme 5a: Learning the hard way: Developing protective awareness

Developing an awareness of the ways in which smartphone use affects wellbeing was described as a vital protective factor against the potential harms of smartphone use by all participants. This GET is connected to all others in some form as the extent to which participants' experienced positive or negative effects on their wellbeing was mediated by their awareness, i.e. knowing what types of smartphone use are beneficial or harmful, then modifying use patterns accordingly. However, participants faced a common problem in that developing and maintaining awareness is no straightforward process, particularly when first encountering smartphones, usually in their early teenage years. The complexity of smartphones, their addictive nature, and their subtly interconnected 'good' and 'bad' parts make the development of awareness a slow and often painful process. Participants describe being thrown into the complex world of smartphones/SM alone, without guidance. Their parents didn't understand it, institutions like big tech companies, schools, universities and health-services did not provide any information or education relating to risks/benefits. Thus, vital protective awareness is "learned the hard way" (I.121, p.28) as described by Hannah. Participants learn what makes them feel good or bad through trial and error, through self-reflection, talking to peers/family and their own research. Many felt this was an unfair burden to place upon their younger teenage selves as they still struggle to understand and manage the complex relationship between their smartphone use and wellbeing as experienced adults. Almost all felt some external input and education should be provided, feeling this could have saved much hardship and pain, some of which is still carried today.

Eva's description captures how difficult the development and maintenance of awareness is on SM:

"I mean I think I try and negate against some of the kind of worst aspects of it, sometimes successfully, sometimes less successfully but I try and be aware" ... "I just try and use it in a way that maximizes the better parts as much as I can but I do maintain that not having it at all would be better." (I.201, p.5)

After years on SM Eva still struggles to achieve a steady state of awareness that enables healthy use. Her repetition of the word 'try' is indicative of a constant battle for awareness and healthier use. Awareness appears elusive and difficult to maintain. Her description sounds more like something akin to damage control rather than being content with her relationship with SM, ultimately believing life would be better without it.

Hannah:

"And sometimes you forget (to be aware)" ... "But you've got to be quite aware and strict with yourself so that, you know, we, what am I? What am I doing here? How did I get here? Or I think now more than ever, I'm so much more aware of that and I do, do recognise like immediately when I'm like either looking at (harmful) content." (l.686,p.16)

Like Eva, it's clear from Hannah's description that she needs to put in constant effort to remain aware of the impacts of smartphone use on her wellbeing. Her use of the word 'strict' implies that using her smartphone in a healthy way goes against her natural use tendencies and requires active effort and discipline to continuously reflect and remain aware. Unlike Eva, Hannah seems to maintain a level of awareness where she's able to recognise harm immediately. Below, she goes on to describe other ways she's developed an awareness of problematic use, such as questioning and reflecting with peers.

Hannah: *"I think yeah, just talking about it helps, and with my friends and stuff being like, wait, are you feeling like this too? Like, hold on, why are we why are we doing this?" (l.772, p.18)*

Brian has also struggled to remain aware:

*"you get that like reminder of your, your Screen Time on your phone, and then you're like, holy f**k! That's, sorry, so you're like, five hours a day on my smartphone! I didn't even, like how am I on my phone for five hours a day?" ... "How is that? How is that possible? And I think that's when you when you like, reflect on it." (l.32, p.1)*

Brian's description illustrates his unawareness of the extent of his smartphone use, there was genuine shock in his voice during the description, he swears and stumbles over his words, illustrating the sheer disbelief he experienced. The measurement 'Screen Time' provided by some smartphones, is the closest thing Brian received to external guidance. Yet this small spark triggered the recognition that he was unhappy with his smartphone use, enabling deeper reflection and development of awareness. This experience is testament to how important even very limited education on smartphone use could be as people may not even be aware they're experiencing problematic use.

Like Brian, Riana also found the development of awareness elusive:

“but sometimes that awareness doesn't come right away, so you can again just get stuck feeling bad about yourself and not knowing exactly, because you've just seen some image that made you feel that way.” (l.831, pg.20)

It seems understandable that Riana finds it difficult to remain aware of the impact of her smartphone, she will be viewing potentially thousands of images over multiple hours every day. The majority will likely have fairly subtle effects but may still have a powerful cumulative effect on her mood over time. This may be hard to identify leading her to becoming 'stuck' in negative states unless she's able to maintain a more fine-tuned, stable awareness.

Rosa describes the importance of awareness in protecting her from body image and eating difficulties:

“I think that was one of the best things that I did for myself (unfollowing Instagram pages) because if there's ever something that makes me like return to how I felt before then I sort of red flag it in my brain and I'm instantly aware of it, like if there's a dieting video then I immediately just click not interested, because I'm sort of hyper-aware of not getting back into that sort of echo chamber of SM now.” (l.1044, p.19/20)

The process Rosa is describing is essentially obsessing/worrying, but amplified through her interaction with SM images and videos. The worrying and obsessing become a maintenance factor for her anxiety. She learned through trial and error that she could in effect let the worry go by unfollowing pages, thereby reducing her anxiety. This is not an easy concept to understand without guidance, especially for young teenagers. Rosa may have a natural tendency to try and think or problem-solve her way around difficulties, which can become problematic if this progresses to obsession and worry without action, serving to maintain the cycle. Once Rosa cultivated an awareness of this process, she was much better equipped to navigate SM more safely. Again, she had to learn the hard way, only managing to develop an awareness through her own intimacy with suffering over a period of years, causing lasting psychological damage, illustrated in the quote below. How much pain could have been avoided if she'd had education on this common problem before using SM?

Rosa: *"I'm still carrying a lot of the sort of things (body image difficulties/obsession with stomach appearance) that arose when I first started using SM which have sort of like continue to now."* (l.1015, p.19)

When describing the important yet challenging process of developing an awareness of the intricacies of the relationship between smartphone use and wellbeing, many participants felt that some form of collective dialogue or education on the subject would have been extremely helpful, as opposed to having to go it alone. There is also an additional benefit of everybody receiving education as this may help to change social expectations and norms on Smartphones/SM, which formed part of many participants' problems.

Eva is referring to SM education:

"I think it should be in schools. I think a big effort needs to be made for people to take it seriously, and I think the problem with SM is there's such a generational gap" ... "I think a lot of people kind of believe that you don't understand until you're in it." (l.1053, p.23)

Eva believes that much more effort is required to take SM education seriously, implying she feels the issue is ignored or misunderstood. Perhaps this is directly related to her second point, that there is a generational gap. Those in relative positions of power who can implement change such as politicians, healthcare providers, teachers and parents are less likely to have experienced and therefore understand the problems teenagers and young adults face. This is an ever-present danger in rapidly developing industries like tech.

Hannah describes experiencing the difficulties of the generational gap first hand when using SM. There's a sense she had no one to turn to and longed for support and guidance but had no way to access it.

Hannah: *"your parents have no idea, your parents haven't been through that so they they can't advise you."* (l.1222, p.29)

Talia also feels that more attention should be given to smartphone education. Speaking from personal experience, she's worried about the effects on young people due to their developmental stage and impressionability.

Talia: *"you're at such a young age and you're very, developing and can be quite like impressionable by what you see because maybe you've not experienced life enough" ... "it's definitely something to be looked at for more early years, I think of like, noticing what's positive about it for them, and what's negative about it for them."* (l.1326, p.31)

Similarly, Hannah recognises the importance of education:

Hannah: *"I've grown up with SM's growing influencer culture, and I've had to kind of learn the hard way. Whereas going into that, knowing that it exists, and knowing what the problems are and how you can maybe positively like change these things for yourself and for the better of your well-being."* (l.1207, p.28)

Hannah reflects on her experience of developing awareness 'the hard way', there's a sense of resentment that this responsibility fell solely on her. Having now gained an understanding of the problems and benefits of SM she reflects on how much easier things could have been with some relatively simple education. Even 'knowing that (problems) exist' would have been useful, priming her to be aware of detrimental effects, as well as more specific education or interventions to promote healthy use. Below, Hannah describes an exemplar of how important even basic information could be.

Hannah: *"when I realised what Instagram was, that was like a switch for me" "you're like ah okay, people literally only put the good things on Instagram."* (l.1158, p.27)

The recognition that Instagram is generally an idealised representation of people's realities caused a sudden shift in Hannah's understanding and psychology. Having previously struggled with self-comparison on many different fronts, the realisation that what she was comparing herself to had in fact been an idealised reality all along acted as an antidote. This is a clear example of the power that improved awareness can have on wellbeing, awareness that could so easily have been taught.

Brian feels a more open, collective dialogue is needed to address the novel issues smartphones bring:

“there's also like yeah, like a maybe like a culture of denial about how much we're on our phones, and that never gets spoken about ever, you never hear about it” ... “I think it could be spoken about more.” (I.1023, p.24)

Brian was genuinely shocked after finding out his Screen Time, and shocked at his own lack of awareness of the issue. He may be at least partially attributing this to a general lack of cultural dialogue on the subject. His use of the word of ‘denial’ indicates a refusal to admit a difficult truth, a feature common in addiction development.

3.6.2 Subtheme 5b: Awareness alone is not enough

Gaining an awareness of how smartphone use can influence wellbeing was recognised by participants as protective against harmful effects and promoting healthy use. However, several participants also felt awareness alone was not enough to negate negative impacts in all circumstances, i.e., they continued to engage in certain types of smartphone use despite knowing it was having a detrimental effect on wellbeing. Participants gave multiple explanations for this phenomenon, some felt trapped by their unwillingness to part with the good aspects of SM/smartphone use, which can be intrinsically linked to the bad, as discussed in GET 1. Others felt that irrational and intense feelings interrupted logical thought and behaviour. Addiction was given as an explanation, an inability to stop a behaviour the user knows is harmful. Others felt awareness was transient and too difficult to continuously maintain. Some participants felt their brain was not adapted to handle the technology, for example having an awareness that images are edited or profiles are idealised but being unable to see them as such in the moment, and thus on the level of emotional reactivity, the content appears real.

Eva describes how automatic ‘irrational’ feelings can dictate thoughts and behaviour, overriding previously held awareness:

Eva: “(On SM) People don't tend to show the real side, the well, the less aesthetically pleasing sides of their life. So yeah, it's kind of like everyone feels a bit shit, even though none of it's real and we kind of know that as well. That's I think what the hardest part is. It's not a lack of awareness of that, I think it's kind of deeper and it plays on kind of irrational feelings, and that's why it's quite hard to get yourself out of that headspace.” (I.241, p.6)

Referring to viewing edited/unrealistic images on SM, Eva explains how viewing these images can trigger insecurities through self-comparison. The knowledge that the object of comparison isn't 'real' doesn't help her as insecurities and emotions are generated automatically upon seeing the image, and subsequently influence thoughts and behaviour. In some sense it seems unsurprising Eva experiences this response; it is only in the last couple of decades that any photographic image of a person has ever been created, that is not in fact real. Human brains may be poorly adapted to understand this phenomenon fully. Whilst evolutionary newer parts of the brain like the cortex can help provide a cognitive understanding, the older emotional parts of the brain, like the limbic system, respond to incoming sensory information on a more automatic and reductive level. Thus, knowing an image is edited cognitively, doesn't necessarily translate into an equivalent, rational emotional response.

Riana expresses a similar sentiment to Eva when discussing SM:

"I think sometimes you, just as much as you know, it's not reality, I think it's still something you're seeing out there and your brain automatically is like, well, they if they have that, yeah, you know, why do I not? You know, maybe I can have this by some reality?" (l.1047,p.25)

She chooses the word 'brain' as opposed to a personal pronoun, indicative of a subconscious automatic, impersonal response that can't be helped. She goes on to describe how her emotional state generated upon seeing images on SM subsequently affects her thinking and disconnects her from her broader awareness of SM-wellbeing dynamics.

Riana: *"I think because then you kind of let go of, not always, but you're kind of so overcome with that emotion that, I think emotions can be very, I mean, you don't kind of see the facts, then it's, you don't see it rationally, you're just very driven by feeling a certain way and thinking that's true. So, 100% I think your emotions very easily dictate which thoughts you hold on to, and how quickly you can get out of it (negative thinking)." (l.1065, p.25)*

Again, Riana implies the emotional part of her brain automatically believes a distorted reality based on distorted visual data. Riana is, in essence, being tricked. There is also an element of inherent uncertainty relating to what is real or not that makes the phenomenon more challenging to untangle and thus more anxiety provoking – what aspects of people's SM profiles are actually false? What parts are photo-shopped? To what extent are people idealising their lives? There is no clear labelling,

everything viewed has the potential to be completely real. This creates added uncertainty on the cognitive level as well as the automatic emotional reactivity, further paving the way for worry, obsession and self-comparison.

Rosa has experienced similar issues. Upon viewing SM profiles her awareness is pushed into the subconscious, temporarily forgotten:

“it’s just very not representative of peoples’ real lives, you just post the best parts of it” ... “but it also creates this very like, like it’s like subconsciously I know it that’s only the best part, but sometimes that needs to get through because you can forget that.” (l.995, p19)

Talia has also struggled with the impact of images on SM on her wellbeing, despite having awareness of the issue.

Talia: *“if I allow myself or even subconsciously allow myself to allow to continue, continually misinterpret things, it definitely, you probably, doesn't paint a pretty picture of myself, in a sense of, because maybe I'm not learning from something, and maybe it is changing relationships.” (l.1279, p.30)*

Talia has an awareness that she has a tendency to negatively misinterpret the meaning of images on SM due to a lack of context/editing/idealisation which has impacted her relationships. Her inability to change this behaviour despite being aware, appears to be leading her to blame herself, impacting her self-image and self-esteem by doubting her own ability to learn and change. This seems a personalised and harsh self-appraisal in the face of new technology that the human mind in general struggles to fully comprehend.

Eva reflects further on why she and people in general engage in behaviour they’re aware causes harm:

“just because they know something is bad for them, it doesn't stop them from using it” ... “when it comes to anything that makes money, profits and business is more important to most companies than anything else” ... “It’s not the first time that it’s happened, but I think we’re still trying to understand why, and why we do it. It’s a very kind of internal battle.” (l.182, p4.)

There is a sense of her anger and distain for SM companies, feeling they're immoral for their lack of concern for user safety and obsession with profits. She later states she believes companies know their products are harmful but do little to protect consumers. Eva recognises a common pattern of consumers intentionally consuming unhealthy products. Seemingly, she's still reflecting on why she is doing this with SM, trying to make sense of something that at face value, seems illogical. When this pattern emerges in other contexts, it is commonly explained by the dopamine reward system, witnessed in the tobacco, alcohol, ultra-processed/sugary food and illicit drug industries. A short-term spike in dopamine creates pleasure which users continue to seek in larger doses as a tolerance is formed. Products that are found to produce this neuropsychological response are far more likely to be addictive. It's possible that this is the internal battle Eva struggles with, the 'drugification' of socialising/social networking.

Rosa: *"It's like people are so aware of the fact that they're wasting their time on it but we'll just not stop because everyone's sort of addicted."* (l.1141, p.21)

Rosa, referring to SM, explicitly states that she feels awareness is no longer protective once people become addicted, providing an explanation of the pattern that Eva described of engagement with a known harmful behaviour. Awareness may be more helpful in stopping an addiction from forming and is often the first step required to combat a developed addiction, but additional more targeted intervention may also be needed. Rosa also raises the issue that 'everyone' is addicted, which may also play a crucial role in clouding awareness by normalising a problematic behaviour. People have a tendency to judge a behaviour as being problematic by comparison to peers and whether it is socially accepted, rather than objective factors. For example, excessive alcohol use is (generally) accepted more by society than objectively less harmful but illegal drugs. This social acceptance may allow problematic smartphone use to hide in plain sight.

In summary, an awareness of the common patterns of relationships between smartphone/SM use and wellbeing appears to be vital in promoting healthy use of smartphones and protecting against potential harms. However, in certain circumstances awareness alone is not enough. Emotional reactivity, addiction, an unwillingness to give up the interconnected positive aspects and a cognitive-emotional dissonance upon viewing certain content, inhibit the protection awareness brings. In such cases, more specific and directed interventions may be required in order to promote healthy smartphone use.

4. Discussion

4.1 Overview

In this chapter I shift away from the phenomenological psychological attitude (Finlay, 2008), and aim to discuss my findings in the context of the existing literature base, conceptualising them in the light of previous findings and psychological theory. I will discuss each GET and their subthemes in the same order as the analysis, whilst continuing to make conceptual links between interrelated GETs. I will then discuss the limitations and strengths of my research, followed by explicating their relevance to the counselling psychology discipline, their implications for clinical practice and potential areas for future research. Finally, I will consider personal reflexivity and my role as the researcher.

4.2 GET 1: Smartphones are complex: You can't separate the good from the bad

4.2.1 Subtheme 1a: Trapped by your smartphone

As discussed in the literature review, there have been mixed findings concerning the impact of smartphone/SM use on the mental wellbeing of adolescents and young adults (Kross et al., 2021; Yang et al., 2021). Some studies have found small negative relationships, some finding small positive relationships, and others finding no significant relationship (Kross et al., 2021). Similarly, when attempting to understand whether smartphone addiction exists, some authors feel addiction is an accurate description, whilst others feel problematic or excessive use is more fitting term due to a lack of clinical symptoms (Panova et al., 2018).

As a consequence of these inconsistencies, many leading researchers feel there's a need for research employing different methods, such as qualitative and experimental designs to elucidate the relationship (Vahedi and Saiphoo, 2018; Keles et al., 2020). A common issue raised is the use of aggregate research in quantitative designs i.e., reducing complex variables like smartphone use/SM

use/Instagram use to a single numerical entity (Kross et al., 2018). Some researchers argue this approach is too reductive for complex multi-faceted variables and that the specific behaviours within smartphones/SM use need to be identified and studied as some may be beneficial, and others detrimental to wellbeing (Griffioen et al., 2021).

Findings from this study support this theory, for which there is growing evidence. Participants acknowledged that 'good and bad' exist within smartphone use and individual applications, supporting previous research (Singh et al., 2018; Elhai et al., 2017). Participants elaborated on this point, explaining that good and bad were often inextricably linked making it extremely hard to use smartphones in a healthy way. Participants frequently conceptualised this phenomenon as a 'trap', feeling unable to escape the negatives of smartphone use due to an unwillingness to relinquish the positive aspects, which they deeply value and exist within the same space. Participants gave several examples of traps: The ability to constantly communicate brought great joy, freedom and connection, but also chronic stress and anxiety due to being overwhelmed with messages/notifications. Participants used Instagram to feel connected to their peers through visual imagery but would also socially compare to images, causing anxiety and insecurity. Eva mentioned she did not want to give up SM even though she viewed it as being detrimental to her wellbeing, due to the investment she'd already put into creating her own virtual world over many years. Participants felt smartphones were useful e.g. using google maps for navigation but then found themselves becoming deskilled/lazy overtime and thus feeling unable to stop using their phones for these purposes.

To the best of my knowledge, only the constant communication 'trap' has been reported in the literature in qualitative research by Harkin and Kuss (2021) and Childs and Holland (2022). This study provides further evidence of the constant communication trap, adding support to Turkle's (2017) theory, the 'freeing-enslaving paradox', that posits new technology gives us freedoms and benefits but simultaneously ties us down to new obligations and responsibility, born of that freedom. I have not seen the other examples of traps described by participants in this study, elsewhere in the literature. These could also be conceptualised using the freeing-enslaving paradox (Turkle, 2017).

These findings highlight the importance of moving beyond aggregate research and employing new methods, offering a potential explanation for the previously stated inconsistencies in the literature. The findings from this study show participants derive many benefits and detrimental aspects from their smartphones, with small changes in behaviour, cognitions or context being very impactful. For instance, participants reported seeing images of peers on SM as enhancing connection and

maintaining closeness despite distance, yet at other times they would see images of peers and self-compare, leading to anxiety and reduced self-esteem. The behaviour and app being used are identical, however, the psychological mechanisms and subsequent impact on wellbeing differs dramatically. Relatively imprecise quantitative measures investigating smartphone/SM use in aggregate are unable to detect these intricacies, potentially explaining inconsistencies in the data (Kross et al., 2021). The same point can be argued for other traps identified by participants, which contain both positive and negative aspects.

The complexity of smartphones and their apps pose a problem for researchers as they can be used in many different ways, it would therefore seem sensible to move away from aggregate research and onto identifying the common psychological mechanisms that impact wellbeing. It was also apparent in this study that participants found the subject very difficult to describe, often seeming to understand the complexity of the relationship with their smartphones for the first time through intentional reflection during the interview. It may be possible that the complexity and habitual nature of smartphone use interferes with people's awareness of the phenomenon; another potential flaw of self-report measures. Indeed, previous research shows smartphone users regularly underestimate their screentime compared to objective measures (Yang et al., 2020). Awareness is discussed in detail in GET-5.

4.2.2 Subtheme 1b: Addiction or Dependency?

Smartphone addiction is an area focus within the field, most research is quantitative, multiple measures are used but most commonly the Smartphone Addiction Scale (SAS) (Kwon et al., 2013). This has become a popular area of research due to drastic increase in smartphone ownership and screentime over the past decade, much research has found a positive correlation between increased SAS score and various psychopathological variables (Olson et al., 2022). However, there has been debate as to whether smartphone addiction really constitutes a clinical addiction. Researchers like Elhai et al. (2017; 2019) argue smartphone addiction can be conceptualised using DSM/ICD substance misuse criteria and aligns with pre-existing models of addiction development e.g. Griffiths (2005). Other researchers are less convinced due to inconsistent/vague working definitions of smartphone addiction, the consistency and validity of measures utilised, and a lack of research that demonstrates causation (a key clinical symptom of addiction is to cause harm) (Panova et al., 2018). Consequently, some researchers feel the language 'problematic/excessive use' may be wise until more definitive research becomes available, as not to over-pathologize smartphone use (Kardefelt-Winther et al., 2017).

The findings from this study provide support to both sides of the addiction debate and add much needed context to the phenomenon. Brian and Talia, described themselves as addicted to their phones, the other four participants felt dependency was a more appropriate word. Interestingly, Talia and particularly Brian, described symptoms that align more closely clinical models of addiction like the Griffiths components model of addiction (2005) and Kardefelt-Winther's (2014) compensatory internet use theory (CIUT). Brian fulfilled every component of Griffith's (2005) model, summarised as experiencing impairment/negative consequences, craving, lack of control, withdrawal and tolerance (Panova et al., 2018). Brian's experience of addiction development aligned with CIUT i.e., using his smartphone as an emotion-regulation strategy (distraction from negative affect) which becomes reinforced over time, e.g. stress during challenging work leads to smartphone use, which ultimately serves to maintain the stressor and creates adverse consequences i.e. reduced productivity, anxiety and reduced self-confidence/autonomy, supporting previous work by Elhai et al. (2019).

Furthermore, Brian's description adds support to two qualitative papers on smartphone addiction by Karnaze et al. (2021) and Lukoff et al. (2018) who's participants described very similar experiences, though they termed this 'Delaying the unpleasant' and 'Escapism' respectively. Talia only described experiencing impairment/negative consequences and a lack of control, from the addiction criteria but may have experienced more. She experienced impairment in the form of perpetual distraction from previously valued activities e.g. films and books, adding support to David and Robert's (2017) Present-absent paradox, whereby despite being physically present for an activity, mentally participants are partially absent due to smartphone use. Both Brian and Talia described addiction only in the context of SM use, using Instagram/twitter and TikTok respectively.

The other participants felt they used their smartphones more than was desirable but chose the word dependency, Eva explicitly stated she felt addiction was incorrect; although she and other participants felt their peers/generation was addicted. Dependency was a theme in line with several other qualitative studies (Lapointe et al., 2013; Walsh et al., 2008). Participant's experiences could be described as a forced functional dependency, i.e., their smartphones are now required to function adequately within society, supporting previous research (Park, 2019). Participants gave multiple examples including, banking, shopping, transportation, navigation, socialising, and functioning within institutions such as universities. This offers an alternative explanation as to why participants may be spending many hours a day on their smartphones, frequently check them, struggle to stop using them and feel anxious without them, but, should not necessarily be considered an addiction,

although mimicking the symptomatology. These findings add support to the term ‘excessive/problematic use’ over addiction, strengthening Frances and Widiger’s (2012) and Panova’s (2018) arguments. The findings indicate that in order to ‘diagnose’ a smartphone addiction, specific individual behaviours and cognitions may be required in addition to quantitative measures.

What is concerning is that it’s very possible that functional dependency and addiction can coexist and likely amplify one another, it’s is becoming increasingly well known that big tech companies are likely designing products to be highly addictive (Bhargava et al., 2021). Meta, which owns Instagram and Facebook is currently being sued by the attorney general of 33 states in the US for designing SM aiming to addict children. Needing a smartphone on your person to function adequately in society which may also contain highly addictive products is a deeply undesirable combination. How would one be expected to quit? Several participant’s acknowledged big tech companies’ role in creating addiction, differing from Karnaze et al’s. (2021) qualitative study in which some participants placed the responsibility on themselves, believing they needed more self-control.

4.3 GET 2: It’s the seeing it! Comparison to Visual Media, Insecurity Exacerbation and Identity Distress

SM is sometimes compared to other ground-breaking technological advances like the printing press or television (Kross et al., 2021). I would however argue SM has features that make it very different from previous advancements in technology. SM is designed to capture the attention of users, often through making products intentionally addictive, using advanced technologies. Secondly, SM is interactive, i.e., users can post, comment, communicate with peers and create their own profiles in whatever way they please, including editing photographs and videos of themselves.

Findings from this study and previous research indicate these unique features can have profound impacts on wellbeing, fostering an ideal environment for upward-social-comparison, often leading to identity distress and exacerbation of insecurities.

Festinger (1957) developed Social Comparison Theory, he defined social comparison as a form of self-evaluation, allowing individuals to assess their own abilities and opinions in relation to others, serving the important purposes of enabling individuals to understand their positions within social groups and aid identity development (Shmuck et al., 2019). According to Festinger (1957), social

comparison can either be upward, if the object of comparison is superior, leading to reduced self-esteem and negative emotions, or downward, if the object of comparison is inferior, leading to a positive self-evaluation and emotions.

SM is the perfect environment for social comparison, it allows users to view thousands of other profiles in one place, many are peers, which most strongly activates social comparison (Festinger, 1957), but there are also celebrity and influencer etc. profiles. Although SM allows for authentic representations of the self, this is a rarity due to positivity bias (Reinecke and Trepte, 2014.); users tend to upload idealised and positive images/information about themselves knowing they will be viewed and likely judged by others. Positivity bias means that upward social comparison is far more common on SM than the real-world, as users compare their mental representations of self to other idealised SM profiles, rather than a profile-to-profile comparison (Yang, 2016).

Several studies have demonstrated that both Instagram and Facebook use result in increased upward-social comparison, having negative implications on wellbeing, self-esteem, anxiety and depression (Liu et al., 2017; Wang et al., 2017; Vogel et al., 2014). Findings from this study supports previous research, many participants reported experiencing negative self-evaluations on SM, importantly, this study adds context to previous quantitative studies concerning the foci of comparison. Body-image/appearance was the most commonly cited example, but many others were mentioned including popularity, educational-level and activity e.g. images of others doing more exciting things.

Other correlational and longitudinal studies have found associations between app-based social comparison and a negative self-view and self-harm behaviour (Abi-Jaoude et al., 2020). Moreover, experimental research by Tiggeman and Anderberg (2020) found a causal relationship between idealised SM images and body dissatisfaction compared with realistic images; Karnaze et al. (2021) feel the phenomenon is a growing public-health concern and that more contextual information on SM-based comparisons is needed. Several participants felt they experienced a causal relationship regarding their body image/self-view upon seeing images on SM. Some participants explained the psychological mechanisms experienced during comparisons, Eva described a 'double construction', firstly, the image itself is constructed (editing/filters/selection process), then a second mental construction is made by the participant, essentially a self-referential narrative based off the initial construction e.g., why does everyone else have a more interesting life than me? What am I doing wrong? This narrative engenders feelings of envy and inadequacy.

Participants recognised that a lack of context was a key feature in constructing the unhelpful narratives, to the best of my knowledge this is a novel finding. SM shows snapshots of events and people's lives, devoid of context, and as the platform is online, surrounding context is rarely established, thus users are left to guess/create it themselves. E.g. seeing images of friends socialising could lead one to believe they are intentionally being excluded.

Upon viewing visual media, participants reported experiencing automatic emotional reactions, e.g. feeling envy/inferiority when seeing a peer's or model's body or feeling unwanted/excluded when seeing a group of friends socialising without them. As participants had no context surrounding the images, they would try and make sense of them based solely on that image in a negative emotional state, infrequently leading to biased negative assumptions. E.g. my friends don't want to see me, everyone is doing better than me. The real context was starkly different – e.g. photographs are carefully selected to show the best parts of people's lives and hide the negatives, photos are often edited to make users look more desirable. Several participants reported later learning more information about friends engaging in activities without them and there being a perfectly logical explanation for doing so, their assumption they were not liked/had been lied to/had offended their friends were not accurate, but did strain the relationships.

This process can be conceptualised using Dugas's et al. (2007) intolerance of uncertainty model for anxiety. The model posits that an intolerance of uncertainty drives anxiety, individuals want to feel certain about things in order to feel more safe and secure, when they encounter uncertainty and feel unable to tolerate it, a common response is to envision multiple potential outcomes, essentially attempting to fill in the blanks, to reduce future uncertainty. Counterintuitively, this often has the opposite effect as predicted scenarios often lead to more questions and more uncertainty, in lieu of additional concrete evidence, this cycle of worry/obsession maintains anxiety.

When applied to SM, participants have an uncertain situation due to lack of context, e.g. they don't know why they weren't invited to the social gathering and thus mentally create (often worst-case) scenarios to gain certainty and control, which ultimately leads to more uncertainty and anxiety without additional information (Dugas et al., 2007). However, unlike worrying outside of SM, the problem is compounded by SM itself, its algorithms will direct more similar content towards users if they've spent longer viewing that content, such as with images people are obsessing/worrying over, making the cycle particularly hard to break and more emotionally stimulating due to visual and

auditory media. Some participants felt that through this process SM operated as a machine designed to exacerbate insecurities.

FOMO/social comparison to images and surrounding lack of context was often at the heart of this process but not always, for instance one participant felt their health anxiety and grief was exacerbated through being inundated with more related material. However, the vast majority of participant's insecurity exacerbation was related to social comparison in some form, including body image, hair, acne, relative popularity/loneliness, education, money, relationship and child status comparisons. This finding highlights that social comparison is a very broad issue affecting multiple areas, the vast majority of research is currently focused on female body satisfaction, future research could consider other areas in addition.

Previous research has shown that social comparison on SM can lead to worry/rumination which can in turn predict identity distress (Yang et al., 2018). My findings support this research, many participants felt, particularly in their early stages of SM use, that social comparison and related rumination/worry led to identity confusion. Social comparison can lead to a sense of self-inadequacy, more common in certain environments and developmental periods, including SM during adolescence and early adulthood (Harter, 2015). SM allows comparisons at a much faster rate and to idealised, unrealistic representations of reality, devoid of context, making upward social comparison far more common (Harter, 2015). This process can lead to identity distress where individuals are unable to integrate all of their 'parts' into a coherent self-concept, feeling some parts of the self are unacceptable (Samuolis et al., 2015). Identity distress is associated with lower self-esteem and multiple other psychopathological correlates (Sica et al., 2014). Yang et al. (2018) showed that social comparison leads to rumination that leads to identity distress, my findings support and contextualise this research. Participants felt that viewing images of peers, influencers, models and celebrities would communicate explicit and implicit messages of how they *should* be. SM contains various features including comments and the 'like' button which effectively act as a popularity voting system, it can be embarrassing and damaging to social-status to post something and receive few likes/positive comments. This is a world where everything is judged publicly, participants felt there was powerful social pressure to conform to current trends, including fashion, interests, activities, financial success, academic success and beauty standards. Participants were particularly susceptible to this pressure as many were in a transitory period (leaving school/going to university) where identity is often reevaluated and due to their developmental life-stage. Young adults and adolescents have to try and successfully develop their individual identity at a time where group-identity is also

extremely important. When individuals are close to leaving home it's vital they form new social groups of which they are appreciated and accepted, this need competes with authentic individual identity development (Karnaze et al., 2021).

Many participants reported that the social pressure on SM was so strong they lost touch with their developing individual identity, feeling they did not know their likes, dislikes, values and sensing they were chasing a SM endorsed identity that simply wasn't who they were. For some participants this would manifest in buying clothes they didn't like, adopting gruelling and unwanted diets and exercise regimes and changing social circles, born of a desire to be accepted. This phenomenon predominantly occurred on Instagram, one participant felt self-perfection was particularly prized on this platform.

Some participants noted this process was very difficult to be aware of, often developing from chronic exposure to SM over a period of years, starting from an early age. The importance of awareness will be discussed further in GET-5, however, it's worth noting that it may call into question the reliability of studies using self-report measures. An international self-report study with 38,000 participants found that 22.5% felt they negatively self-compared on Facebook over a two-week period, 1/3 of which said negative feelings lasted for a day or more. Given the automatic and often unconscious nature of self-comparison and habitual nature of SM use, it's possible the actual figure could be higher. Nonetheless, these figures speak to the scale of the problem, Instagram has 2-billion users and Facebook has 3-billion. If extrapolating the results for Facebook alone, that would mean 675-million people engaging in negative self-comparison every two-weeks, assuming every participant is consciously aware of all negative self-comparisons experienced.

4.4. GET 3: Revolutionising communication and relationships

4.4.1 Subtheme 3a: Unrealistic social expectations

Smartphones have enabled instant 24-7 connection, revolutionising communication. Increasingly more of young adults communication/socialising is taking place online (Childs & Holland, 2022). This has led to the formation of new social expectations, rules and conventions, influencing social behaviour and wellbeing (Vacaru et al., 2014).

The expectation to be available and communicate at all times, leading to chronic feelings of pressure and overwhelm was mentioned by almost all participants but only occasionally in previous research e.g. Childs and Holland (2022) and Harkin and Kuss (2020). Although this finding is reported in the literature, few studies appear to mention it's potential significance on wellbeing. Many participants in this study felt it was having a profound effect on their wellbeing, describing it as one of the most damaging aspects of smartphone use, causing chronic feelings of overwhelm, stress, anxiety, guilt and relationship difficulties. Some participants reported that if they stopped using their phone to protect their own wellbeing, they would be mocked and called sneaky by peers, seemingly enforcing the social norm by punishing those who step out of line. This led to participants making up excuses as to why they were not available, feeling a need to lie due to the pressure. These specific impacts have not been reported in the literature. However the theme of constant communication anxiety was supported by qualitative studies by Karnaze et al. (2021) and Childs and Holland (2022).

Participants in this study felt trapped between their competing needs for personal space/privacy and their need for social acceptance/communication, again, creating conflict between individual and group-identity. However, in the context of smartphones/SM this balance seems to have shifted in favour of group-identity, with several participants continually responding to messages/checking their phone or resorting to lying to acceptably avoid communication, putting group acceptance over their individual needs and values. Adolescents and young adults are particularly susceptible to group-identity pressures due to their developmental stage (Worchel & Countant, 2001).

This is further evidence that the term problematic smartphone use versus smartphone addiction is dependent upon context and detail. Participants described an experience where they felt pressured or coerced by powerful social conventions to regularly check their smartphones and respond to messages constantly through fear of reprisals, mimicking addiction symptomatology although with very different underlying motivation. Other qualitative studies have also raised this concern e.g. Vacaru et al. (2014) and Karnaze et al. (2021).

Why does it seem social expectations are more problematic in the context of smartphone use than in person? A possible theoretical explanation put forward by Sbarra et al. (2019) is evolutionary mismatch. They argue that self-disclosure and responsiveness are adaptive evolutionary traits used to facilitate social-bonds, cooperation and underpin attachment. An evolutionary mismatch occurs when ancestral adaptations (self-disclosure and responsiveness) are cued in modern contexts where they are no longer of benefit. Smartphones enable instant communication with potentially hundreds

of people at once – disclosure and responsiveness are unrealistic at such scale, yet the ancestral cues are still triggered, causing stress and anxiety if ignored. This certainly seems to be a fitting theory of which this research adds support, however it fails to mention the role of SM actively exploiting (intentionally or otherwise) human psychology, amplifying the intensity of social expectations. Harris et al. (2020) refers to this process as ‘high-jacking’, where SM companies use nudge theory to persuade users to behave in ways that increase app usage. In the context of social expectations, this includes features like reply time, snapchat-streaks, prompts to message people, and the blue-tick on WhatsApp. Although subtle, they play a powerful role in shaping expectations, etiquette and conventions. Several participants in this study mentioned the role of SM features in creating problematic expectations, supporting previous research (Montag et al., 2019; Karnaze et al., 2021). However, social expectations are in constant flux and can change (Stald, 2008), another reason why education on smartphone use may be important.

4.4.2 Subtheme 3b: Tension in relationships

Current research indicates that smartphones have both positive and negative effects on people’s relationships (Yang et al., 2019), a finding this study supports (positives aspects are covered in GET-4). It is important to explore any changes in relationship dynamics and their implications for wellbeing as peer-relations play a vital part in the emotional, cognitive, social and personality development in young-adults and provide a sense a belonging, security and aid the formation of healthy relationships in later life (Wang et al., 2023).

As well as positives implications, much research indicates smartphone/SM use can have detrimental effects on relationships. A study by Spencer (2018) found an association between increased SM use and decreased quality of relationships, thought to be due to irritation, distraction and reduced quality-time in-person. Other researchers theorise that the negative impacts on relationships are an indirect effect, rather, it’s excessive smartphone use’s impact on mental wellbeing that adversely effects relationships through increased stress/anxiety (Elhai et al., 2017; Yang et al., 2020), or through depression which can cause social withdrawal and loneliness (Tandoc et al., 2015). These findings were not however supported by this study. Some research has shown ‘phubbing’ ignoring peers in-person due to smartphone use (Chotpitayasunondh and Douglas, 2016) and ‘substitution’ substituting online relationships for in-person contact can also impact relationships negatively (Yang et al., 2021), though these were only very briefly mentioned by one participant. Other possible explanations for reduced relationship quality in the literature were cyberstalking (Harkin and Kuss, 2020), and cyberbullying (Spencer, 2018) which were not mentioned in this study.

Participants in this study felt that the predominant form of relationship difficulty was due to pressure from new social expectations surrounding communication, this finding is very rarely cited in the literature, Childs and Holland (2022) is a notable exception. The most common form of relationship problem for participants was feeling unable to meet their peer's need of constant availability/communication, which they felt is now considered an important aspect of 'being a good friend'. Consequently, participants often felt they were letting their peers down by not responding, causing guilt, chronic anxiety and fear their peers would be annoyed. However, the alternative was to be constantly on their phones, responding to messages, feeling burnt-out and overwhelmed. Participants also felt resentment towards their peers for putting them in this uncomfortable position.

These challenging emotions experienced online would inevitably bleed into offline relationships as online and offline are now deeply interconnected and cannot be fully separated, known as 'syntopia' (Kerkhof et al., 2011). This would manifest as unaddressed relationship tension as it is unconventional to discuss SM related expectations and etiquette, according to participants. Several participants felt that this had become such a big issue in their lives they felt having a shared understanding of social expectations on SM was a very important part of friendship, feeling that relationships with significantly differing expectations were unlikely to work or be problematic.

I've not seen SM expectations impact on relationships explicitly discussed in the literature (with the exception of Childs and Holland (2022)) but it is occasionally implied, for instance Jaynes (2020) briefly states that breaching acceptable norms could lead to individuals being outcasts. Some participants also felt their relationships were strained from the opposite perspective, i.e., feeling annoyed, hurt and rejected by others who did not respond to them, again causing tension in face-to-face interaction. One participant even mentioned they did both, i.e. felt anxious about needing to constantly reply to others, yet found it hard not be angry when others didn't reply to her, her recognition of the hypocrisy led to self-criticism.

4.5 Get 4: Connection, Freedom and Learning: The Positives of Smartphone Use

4.5.1 Subtheme 4a: Connection with family and friends

Despite the multiple difficulties participants expressed surrounding their smartphone use, the enhanced ability to connect to family, friends and peers was seen as a profound benefit by all

participants. In previous themes participants have spoken about the chronic anxiety they've experienced due to social pressures online and subsequent tension in their relationships. This highlights the importance of context in research examining broad and complex variables like smartphone use and SM use. Valkenburg and Peter (2007) put forward a theory that smartphones would either stimulate social interaction through enabling easier connection and connection in new, meaningful ways or it would displace social interaction, primarily through displacing time spent socialising with time spent on a smartphone doing other things. Previous research has provided evidence for both stimulation and displacement (Stevic et al., 2021). Although this GET focuses on the positive sides of connection, GET-3 describes many negatives, thus, the study as a whole aligns with pre-existing research which has demonstrated both positive (stimulation) e.g., Ellison et al. (2014) and negative effects (displacement) e.g., Sbarra et al. (2019). Research has been predominantly quantitative, often using measures too imprecise to detect the underlying processes by which relationships are affected, possibly leading to conflicting findings. Consequently, researchers have argued for a need for more refined quantitative measures and more qualitative studies to provide further context (Kushlev et al., 2019).

Stevic et al. (2021) conducted a more refined study concluding that smartphones stimulate and enhance social connection providing the user is engaging in active social activities as opposed to passive scrolling/non-social activities, which were found to displace social connection and lower relationship quality. Although this research has provided more context than looking at smartphone use as a whole, the findings are inconsistent with the results of this study, which found active social engagement on smartphones could be both detrimental (feeling overwhelmed and inundated with messages (GET-3)) and beneficial to relationships/connection e.g. connecting with friends, family, people abroad, adding a further layer of nuance and context.

Vulkenburg and Peter's (2007) theory of stimulation states that media on smartphones enables a different type of connection that compliments and even enhances face-to-face interaction and increases overall connection to others. Findings from this study support this theory, for example, one participant found new ways of intimately connecting with friends online by sharing inside jokes through memes and other online-specific material, which they felt enhanced connection and friendships in a unique and special way.

All participants described the ability to constantly communicate with peers and family, using video-calls/photographs as invaluable to their wellbeing and current lifestyle. Participants describe deeply

meaningful experiences that were enabled by this ability, most commonly cited was the ability to maintain relationships with family and friends, particularly if separated by geographical distance. The examples of connection that smartphones/SM enabled for participants felt profoundly meaningful, which included: Being able to maintain their relationship with their best friend from primary school, now their oldest friend; maintaining contact with an ex-partner after moving abroad which they felt enabled them get back together upon their return, they are now in a long-term relationship; being able to regularly see family online who moved abroad 15-years ago, including interacting with their new-born baby through video-chat; and maintaining relationships with a variety of friends from different countries. Two participants moved city and two moved country, feeling that these transitions would have been much harder without the support enabled by smartphones, some participants said they wouldn't have felt confident enough to go without the constant communication with family. Ultimately, this is not only allowing participants to enhance and maintain relationships with people, but also to new places, cultures, study and work opportunities, and lifestyles.

These findings support and add context to previous research, in particular the role of visual connection (photo/videos/video-calls) has been shown as stimulatory to long-distance relationships. For example, Holtzman et al. (2021) found visual communication gives a sense of really 'being there', enhancing connection, and improving long-distance relationships. Neustaedter and Greenberg (2012) produced similar findings that visual-communication can give a sense of 'hanging-out', intimacy and improves long-distance relationships.

The key features named as enhancing relationships were constant connectivity/accessibility and visual media/communication. Curiously, these exact features were mentioned in GET-2/3 as the most damaging to wellbeing and relationships. Again, smartphones appear to act as a double-edged sword which highlights their complexity, the importance of education, the need to understand underlying psychological processes and to move away from aggregate variables.

4.5.2 Subtheme 4b: My smartphone is my teacher

Participants in this study described several other benefits enabled by smartphones/SM they felt enriched their lives: Exposure to new experiences and ideas, the development of skills, education and passions, and feeling their lives were made easier by smartphones.

Several participants mentioned that Smartphones/SM helped them study, learn skills and develop new interests. Research on this topic is mixed, some claiming that smartphones interfere with learning through perpetual distraction (Mashud et al., 2021), whilst others claim it promotes learning through easy access to resources (Anshari et al., 2017). A meta-analysis by Wei et al. (2024) found that smartphones could act as a distraction but once students reached higher education, they tended to be beneficial to learning. Wei et al. (2024) suggests this difference could be explained by adult learning theory, later called Andragogy (Knowles, 1984), this theory posits that children and adults have distinct ways/preferences for learning. Children prefer to be led and shown directly, whilst adults prefer to be in control of their own learning, focussing on growth and develop and will want to apply their learning practically (Knowles, 1984). Participants in this study (18-25yrs) will have recently made/be making the transition into an adult learning style to which SM-learning is amenable. Participants described being able to follow their own interests and expand them, be suggested new material/ideas and share information with others. Moreover, their learning had practical applicability e.g. make-up artistry, fashion design, photography techniques and book reviews. The vastness and breadth of SM seems important here as participants were able to develop a range of skills and interests that suited them. This technology fostered inspiration, creativity, education and joy in participants.

This study's findings support previous research, Hermawan et al. (2023) found that SM could be used to enhance learning through improving creative thinking, developed through the sharing of information, open discussion, exposure to multiple perspectives on issues and encouragement to think outside-the-box. Sun et al. (2020) found SM could be a place of inspiration, innovation, motivation and creativity, supporting participant accounts in this study who described being lost in new passions, and gaining immense satisfaction from learning new skills and being exposed to new ideas.

Furthermore, participants reported that their smartphones were extremely useful to them, making everyday life more convenient and efficient. Participant's described ordering train tickets, booking taxis, using the NHS app, navigation and online-banking as extremely useful and time saving, supporting previous research on the utility of smartphones (Almunawar et al., 2018).

Smartphones/SM can be extremely useful and seem to offer an ideal environment for adult learning to take place, users can learn in a self-directed, interactive way enabling them to develop and grow, fostering inspiration and creativity. However, Hermewan et al. (2023) warns that these benefits are

conditional on smartphones being used in the right way, they highlight the need for education and user awareness in order to counter problems such as SM addiction, false-information and privacy issues. This study adds support to Hermewan et al's. (2023) caution, findings show smartphones seem to give with one hand and take with the other, for example, it seems likely that the same process that enabled the development of new interests/skills is also responsible for exacerbating participant insecurities (GET-2), i.e., algorithmic positive feedback loops designed to show the user content they're are likely to be interested in based on previous online behaviour – people are very interested in both their hobbies and insecurities. Additionally, many participants reported smartphones made their lives easier and save time, whilst simultaneously feeling they waste a lot of time on their smartphones. This again, highlights the complexity of smartphone use and its very real potential for both positive and negative impacts on wellbeing, and the need for improved user awareness and education on the subject.

4.6 GET 5: What You Don't Know Really Does Hurt You

4.6.1 Subtheme 5a: Learning the hard way: Developing protective awareness

Throughout the course of this study participants tried to make sense of the various ways their smartphone interactions affected their wellbeing, they felt being aware of the beneficial and detrimental aspects of use was essential to protect wellbeing and enable healthier use. This sounds relatively straightforward; however, participants faced a common problem in that developing and maintaining awareness is not a simple process, particularly when first encountering smartphones, usually in their early teenage years. The complexity of smartphones, their addictive nature, and their subtly interconnected and context dependent 'good' and 'bad' parts, made the development of awareness a challenging process for participants.

Many participants felt resentful that the responsibility to be aware fell solely upon them, when beginning smartphone use in their pre/early adolescence. They reported receiving no external guidance to promote safe smartphone/SM use, not from big-tech companies, schools, universities, teachers, parents, politicians or health services. Some participants reasoned this was due to big-tech companies putting their business ahead of user well-being, and a generational divide, i.e. parents, teachers and institutions being unaware of the dangers themselves, having not grown up with the technology, thus, many participants felt alone and abandoned.

Participants reported that they would slowly develop awareness themselves, through trial and error, self-reflection, talking with peers and their own research. One participant referred to this as 'learning the hard way', feeling external guidance would be far more effective. Participants gave examples of how even relatively simple pieces of information could make a huge difference to wellbeing, e.g. being made aware of their ScreenTime, understanding that SM profiles are idealised/perfected, understating there's an association between eating disorders/body-image dissatisfaction and SM, and understanding that if certain content on SM is causing uncontrollable worry it may be advisable to unfollow/resist that content. Indeed, prior research has shown individuals with a ruminative/worrisome cognitive-style are at increased risk of developing SM/internet addiction and associated psychopathology (Hou et al., 2019).

For such a prominent theme in this study, there is remarkably little research on awareness. One study by Sela et al. (2022) discusses aware vs non-aware use of smartphones, but this relates to using a smartphone intentionally for a purpose e.g. navigation, vs using a smartphone whilst simultaneously engaged in other activities; this is not the same as having established a general awareness of the common potential positive and negative types of use and psychological processes. The authors found that unaware (unintentional) use was associated with lower quality of life.

Mindfulness is a related, more frequently studied variable with sub-factors 'attention and awareness' and 'acting with awareness', which correlates negatively with problematic/habitual smartphone use (Owen et al., 2019). Elhai et al. (2018) found similar correlations and suggested mindful awareness has potential to be an effective intervention for problematic smartphone use. However, this is again different to the type of awareness desired by participants as this is essentially non-specific, trait awareness/mindfulness as opposed to intentionally being made aware of common problematic/beneficial use patterns.

Participants in this study described something closer to a preventative psychoeducation program on the risks and benefits of smartphone/SM use to create a more specific, relevant form of awareness; several felt this should be a part of school education but remains unaddressed due to a culture of denial and the generational-divide.

Research to date focuses almost exclusively on intervention (once a problem has arisen) rather than prevention, shown in Augner et al's. (2022) meta-analysis of interventions. This may be due to the attempted conceptualisation of the problem as a diagnosable disorder - smartphone addiction,

rather than/in addition to, a general public-health concern. Some studies have looked at different approaches aimed at prevention e.g. Hou et al (2019), with interventions designed to help participants reflect on the negative aspects of use, this is still however self-reflection, as opposed to external education. Yang et al. (2021) is in agreement with participant views in this study, they suggest there should be a shift away from interventions aimed at reducing overall use, instead, quality of use and dimensions of use should be the foci. Their study proposes a multi-dimensional model that could be applicable to prevention, assessment and interventions. It breaks down SM use into common types of use beneficial and detrimental to participant wellbeing, e.g., finding FOMO, social comparison and passive scrolling were detrimental and direct communication to close ties tended to be beneficial for wellbeing. They suggest this could be used as an educational tool for users or for clinicians treating and assessing smartphone/SM related difficulties. The results from this study add strong support to Yang's et al. (2021) nuanced conceptualisation of the smartphone use – wellbeing relationship and the importance of raising awareness.

Perhaps the closest related variable to awareness is 'social media literacy' which is concerned with an individual's technical, cognitive and social-emotional abilities that enable them to navigate SM effectively, for example one's critical thinking. This research is still very much in its infancy and the definition of SM literacy is still being developed (Polanco-Levican and Salvo-Garrido, 2022). A literature review by Polanco-Levican and Salvo-Garrido (2022) reported that improved SM literacy can help users discern what aspects of SM can be harmful e.g. understanding users' positivity bias when uploading photos or understanding what information is likely to be 'fake news'. The authors report that although there is no consensus yet on how to operationalise or define SM literacy, they believe it to be a promising preventative and protective strategy against the risks inherent to SM use. This study supports Polanco-Levican and Salvo-Garrido's (2022) claims, with many participants reporting how crucial the role of awareness was enabling a healthier relationship with their smartphones/SM.

Moreover, a handful of experimental studies have been conducted investigating SM literacy and body image difficulties (a focus of SM literacy research) with some promising results. A randomised control trial study on adolescents in school by Bell et al. (2021) found that a one-hour intervention relating to challenging SM body-image ideals led to increased body satisfaction after the intervention and at 8-week follow up compared with the control. A similar study Gordon et al. (2020) conducted a randomised control trial for year seven-eight schoolgirls, the intervention was a 4-part SM literacy

education focussing on challenging body-ideals on SM. They found that restrictive diets and symptoms of low mood decreased compared with the control group 6 months after the intervention.

My study adds support and contextual information to this previous research by providing personal accounts of how an awareness of the dynamic interplay between SM use and mental wellbeing improved participants' ability to use the platforms more safely. In addition, it's provided examples of how awareness, similar to SM literacy, is helpful in many other aspects of SM interaction outside of body-image. For example, misinterpreting photos of peers causing FOMO, recognising patterns of obsession/worry and knowing to unfollow those pages, recognising signs of addiction using personal Screentime and also what the positive aspects of SM use are.

4.6.2 Subtheme 5b: Awareness alone is not enough.

Participants felt an awareness of how smartphone/SM use can impact wellbeing was vital in promoting healthy use of smartphones and protecting against potential harms. However, several participants also felt awareness alone was not enough i.e., they continued to engage in types of smartphone use despite knowing it was having a detrimental effect on wellbeing. Multiple explanations were given for this; one participant felt that SM was a net negative on their wellbeing, however would not give it up due to the investment they'd already made creating a virtual world/identity. Several participants described powerful emotional reactivity upon viewing visual media as impeding their ability for rational thought and maintenance of awareness. This took the form of seeing an image on SM and comparing oneself, despite holding the awareness that the image is likely edited/idealised on a cognitive level, powerful emotional reactions were still automatically generated and would then influence subsequent thinking, overpowering awareness. The same problem was reported when seeing images with no other context of peers engaged in unknown social activities (FOMO). Seeing these images created immediate feelings of envy, rejection, and anxiety, overpowering rational thought/explanations for some participants. Some participants felt that they knew being on their phone constantly had a detrimental effect but felt unable to stop due to fear of upsetting friends, thus, social pressures and conventions can cause problems that awareness alone couldn't fully address.

The cognitive-emotional dissonance of participants supports neurobiological theory on cognition-emotion interaction, put forward by Cohen (2005). Cohen (2005) theorises different parts of the brain usually work in unison but at times come into conflict, favouring different evaluations of identical circumstances due to their evolutionary history/functions. He states old brain mechanisms in

the limbic system involved in emotional reactivity/processing often alter decision making in a sub-optimal manner in modern day contexts, despite being useful in other circumstances. This part of the brain tends to be immediate in response. The neocortex, a newer part of the brain, is also involved in decision-making, intentional thought, and reasoning. The neocortex may provide adequate reasoning as to why it's not sensible to self-compare to a commuter-edited image but the limbic system may automatically register this as a threat to social-status, in essence this older part of the brain believes the image, coming into conflict with the neocortex, which may not. Indeed, participants mentioned feeling as if they weren't 'designed' to view images in this way, or that they would 'automatically believe' images or suddenly 'forget to be aware', seemingly adding support to Cohen's theory.

There is also the additional problem of uncertainty surrounding images on SM, users do not know what the context is behind images, or to what extent images have been selected or edited, in theory they could be completely real. In reality this is not the case, but the uncertainty behind the image's reality may create further anxiety and worry due to an inability to tolerate uncertainty (Dugas et al., 2007), e.g., why did everyone meet up without me? Did I do something wrong? Is that photo edited? This uncertainty around context and reality of images means an awareness of the idealisation or other more logical explanations of context can at best, only be assumptions. This creates added uncertainty on the cognitive level in addition to automatic emotional reactivity, further paving the way for worry/obsession.

Some participants wondered why people in general engage in behaviours they know are bad for them, describing other examples predating smartphones e.g. cigarettes, alcohol, ultra-processed/sugary food and illicit drugs. One theory that sheds lights on these seemingly irrational behaviours is the Dopamine reward pathway (Macit et al., 2018), when an individual engages in an enjoyable behaviour dopamine is released in the brain, this will cause the individual to seek the reward again, dopamine will continue being released in anticipation of the reward, this pathway becomes reinforced, creating a positive feedback loop as long as a reward is continually provided (Haynes, 2018).

Studies have shown that the dopamine reward pathway is regularly activated during SM use, users report finding themselves apparently 'aimlessly' scrolling through 'pointless' content, this can be conceptualised as pulling the lever in a slot machine, participants are playing the game until they get a reward, i.e. a message, a notification, a 'like', a funny video, an exciting picture. Indeed, the participant in this study who displayed the strongest symptoms of addiction, reported aimlessly

scrolling and compulsively picking up his phone which distracted him from what he wanted to be doing, indicating the activation of the dopamine reward pathway due a drop in dopamine levels upon a period of abstinence, supporting the theory and prior research (Macit et al., 2018). Once the dopamine-reward network has been established, it can be very hard to resist, creating craving and withdrawal, overpowering awareness. The ubiquity of smartphones is also problematic for awareness, normalisation theory states that the risk of becoming addicted to substances/behaviours is partially dependent on their social acceptability, this has been demonstrated with alcoholism across different cultures (Sznitman et al., 2016). SM use goes beyond social acceptability, now becoming a social necessity.

With regards to participants feeling pressured by peers to use their phones due to social expectations and conventions around reply-time, it's possible awareness could be used to address this problem but would need to be awareness at a group level e.g. if enough people felt/became aware that these expectations can be damaging and unrealistic, it may be possible to change these expectations on a group level. Indeed, Stald (2008) reports that social conventions and expectations are fluid and dynamic, frequently changing over time.

4.7 Relevance to counselling psychology and clinical applications

Smartphone ownership and use-time are increasing year-on-year, particularly amongst young people. Smartphone use is viewed by many as a growing public health concern, particularly in Britain which has the second highest use-rate in Europe (Lopez-Fernandez et al., 2018) and is increasingly being associated with mental-health difficulties (Elhai et al., 2019). A core responsibility of the counselling psychology discipline is to remain aware of cultural/societal changes that impact wellbeing and consequently adapt research and clinical practice (Lee, 2019), the rise of smartphone/SM use is arguably one of the largest societal changes in recent times for young adults.

Willig (2013) states that phenomenological research can inform and improve clinical practice, bringing important issues into professional awareness. This study has provided much needed findings on the intricacies of smartphone use and the potential underlying psychological and behavioural processes that occur during use; thought to be critical in the development of clinical understanding, interventions and future research (Kross et al., 2021). Thus, I hope this research may be of use to counselling psychologists (CPs), therapists, teachers, parents, and institutions including schools, universities and health-care services, who may intend to develop their services. These findings could aid the development of smartphone/SM-based interventions/education, or by improving

CP's/clinician's therapeutic relationship with clients by enabling a deeper understanding of a complex and obscure part of their lifeworld, fostering empathy and connection. I feel that the dissemination of this research could play a part in improving CP's and other's understanding and awareness of smartphone use's impact on wellbeing, given the prior lack of detail, context, individual experiences and young people's voices in the research.

This research may be of particular relevance to counselling psychology as one of its core specialities is developmental and transitional periods (Lee, 2019). This research highlighted the impact smartphones can have on the developing identity of users due to the continuous social pressures experienced online, particularly if from an early age. This may be an important consideration for CPs working with developmental models e.g. A Winnicottian Psychodynamic formulation could conceptualise and explore SM use as a transitional object, a space between the internal and external, an object that connects the self and other (Whitty and Carr, 2006). Transitional objects are often subconsciously the focus of attempts to satisfy internal desires, which appears fitting in the case of SM.

CPs working with humanistic modalities like Rogers' (1957) theory of personality development could also incorporate these findings. Rogers' theory has been criticised for being too focused on the immediate family in creating conditions of worth, failing to consider the broader social context, e.g. systemic/structural/cultural factors like racism, gender, poverty (Chantler, 2005). SM could be incorporated into the model as a cultural condition of worth, i.e. for younger adults it's virtually an unavoidable part of life that places powerful conditions of worth on the individual. According to Rogers (1957), conditions of worth interfere with a person's natural tendency to grow and develop into their authentic-self (the organismic-valuing-process). Indeed, many participant accounts in this study described the social pressures/expectations on SM actively interfering with the development of their natural values, interests and relationships; their 'true' selves.

However, participants also experienced smartphones/SM as extremely supportive and sometimes essential in difficult transitional periods like leaving home or moving country due to accessible social-support. These developmental and cultural impacts brought about by smartphones are important for CPs to gain a holistic understanding of clients, a hallmark of the profession (Du Plock, 2015).

Due to current research limitations, making strong clinical recommendations would be ill-advised, however findings from this study may help clinician's understanding and awareness of some of the

ways smartphone use can interact with mental wellbeing. Previous research has focussed on aggregate variables, like overall addiction, depression, anxiety, smartphone/SM use-time. A significant finding was that smartphone use is individual and complex, containing multiple positives and negatives for participant wellbeing. Thus, it seems advisable that the focus for clinicians investigating client smartphone use should be exploring the quality of use, e.g., by asking questions like: What's your relationship with your smartphone like? What do you use a smartphone for? What are the upsides/drawbacks? How does smartphone use impact your relationships, mood, productivity? These questions will likely foster more fruitful conversations than those relating to total-use time and screen-time reduction (Yang et al., 2021).

For clinicians who may want to conduct a specific assessment, intervention or psychoeducation, this study has provided important detail on what young adults actually use their smartphones for and the psychological processes involved that impact wellbeing. For instance, clinicians should be aware that SM may be having a significant effect on client wellbeing, and should be particularly conscious of social comparison, FOMO, worry/obsession and insecurity exacerbation. These types of issues may be particularly relevant to certain presentations e.g. body-image, eating disorders, excessive worry or obsession. If identified, clinicians could offer tentative advice/education e.g. for social comparison, provide education that SM is an unrealistic, idealised environment. For FOMO, that we don't know the full context behind images, there may be other, less self-criticising, explanations as to why peers are socialising without them, or that not going to every social event is a normal part of life. If worry/obsession is being exacerbated, to recommend identifying triggers and unfollowing that content, explaining that SM algorithms can create a vicious-cycle, this could be easily incorporated into CBT formulations for anxiety and distress tolerance and may be of particular importance for body-image issues (Dugas et al., 2007). Clinicians may also want to explore if clients experience chronic pressure/anxiety from the expectation to be online/reply and the consequential impact this may have on their relationships.

A hallmark of the counselling psychology discipline is a holistic focus on the individual – a client's strengths, values and interests are as important as their difficulties (Lee, 2019). In line with this, it is important for clinicians not to over-pathologise smartphones and recognise their potential to inspire, help clients grow, nurture their strengths and interests, learn skills and enhance relationships.

Participants in this study felt that an awareness of smartphone's elusive beneficial and detrimental effects on wellbeing was essential for healthy use. Many felt failed in this regard, finding they had to

develop awareness themselves through an arduous process of trial and error that left them psychologically scarred. Participants felt they should have been made aware of the risks involved before using smartphones, many felt this was ignored issue due to a lack of concern born of a generational divide and denial of the issues. CPs should play a key role in advocating for groups and communities that face particular structural/systemic challenges within society (Fassinger and Morrow, 2013), in this case, the disproportionate effect of largely unregulated new technologies on the mental-wellbeing of young people. Participants felt their difficulties were unseen and unheard, feeling society was not taking the issue seriously. I believe CPs, in relative positions of power, should advocate for young adults/adolescents by raising awareness of this issue that disproportionately affects their demographic, this may take the form of educating themselves, conducting research, or disseminating findings from this/other studies to services. Several participants felt that education on the subject should be in schools, they received no education on smartphone or SM use. In recent years, there has been development of education programs that are being rolled out in schools, although often in form of guidance, not compulsory teaching. The department of Education (2024) published guidelines for schools on methods to either ban or restrict mobile phone use in schools e.g. banning them on school premises, handing them in upon entry to schools, or confiscation of phones if seen on school grounds. Although a significant step forward, the primary focus of these guidelines is to improve the learning environment and reduce cyberbullying during school times, not to improve pupil's awareness of the risks and benefits of smartphone use for when they are active on their phones.

The House of Commons Education Committee (2024) published a report on the impact of screentime on education and wellbeing, the report states that online safety and media literacy are now being taught in some compulsory curriculum subjects e.g. computing, citizenship and RSHE. This does now address some more specific and nuanced issues i.e. over-reliance on SM, risks of overuse and effects of harmful content online, and where to get help. Unfortunately the report states that the programme hasn't been very effective and has several problems including the majority of modules being non-statutory, scattered over multiple subjects and teaching staff not being familiar with/trained in the content. Thus, despite recent improvements in the area, education within schools still need further development.

Many young people and their parents are trying to educate themselves on the issue to reduce smartphone use. A study by Kalk et al. (2024) found that of 657 16-18 year old pupils, 95% of them have tried to reduce their smartphone use in some way. The study analysed what methods of

smartphone reduction were most successful and make recommendations for parents and carers. They found using smartphone's 'do not disturb' function, disabling notifications and leaving smartphones in another room before bedtime were the most effective use reduction strategies. The study also found that parental confiscation of smartphones was generally ineffective and often led to conflict. Instead they encourage coming up with shared rules around smartphone use that the whole family should abide by. The study also highlights that further interventions and school based education programs need more research and development, particularly for pupils actively seeking help.

Despite the significant developments in education on smartphone use in schools compared to what participants in this study received, the effectiveness of the education has been called into question, researchers like Kalk et al. (2024) and The House of Commons Education Committee (2024) recognise a need for further research and development of education programs and interventions. Moreover the majority of the education is non-statutory and tends to have a focus on total use reduction. The topics of education tend to focus on online safety in relation to giving out personal information to unknown parties, understanding the validity of media sources e.g. fake information, and cyberbullying. Despite being important subjects, these were not sources of concern for the participants in this study. Participant's wanted something closer to psychoeducation to promote healthy smartphone use, including the identification of common problems, benefits and information on the nature of social media e.g. positivity bias, social comparison, identifying worry and knowing how and when to combat these issues. It is possible these types of topics are being taught in some media literacy modules in some schools but there is still the concern that these modules are often not statutory and teachers, already short of time, may struggle to address them (HoC Education Committee, 2024).

CPs should promote preventative care, an important value of the discipline (Lane and Corrie, 2006). Education and psychoeducation in schools appears to be a logical place to start and the UK government is already taking significant strides in this area, however, as discussed previously, further development is needed. Findings from this study and others could help to further develop psychoeducation programs delivered in schools, universities or health services. Perhaps with an added focus on quality of use, as opposed to reducing quantity of use, which this study and previous research is finding to be increasingly important (Yang et al., 2021). Participants in this study envisioned effective preventative intervention to take the form of psychoeducation on the common positive and negative aspects of smartphone/SM use previously described in this study, preferably

from the age they started using the technology, when they felt they were most vulnerable. Moreover, participants would be given tools to help adapt their negative patterns of use and promote healthy use, e.g. unfollowing pages that are causing them distress or worry, being given education on the nature of the positivity bias on SM and self-comparisons and being made aware of social expectations on SM and how these can impact relationships.

Perhaps the most important feature of CPs work concerns the therapeutic relationship (Lane and Corrie, 2006). I believe adolescents and young adults now feel estranged in society to some extent, being the first generation in decades to be economically worse off than the previous, and encountering new difficulties related to technological advancements from which older generations are relatively removed. There is a sense of collective struggle and abandonment, for which they are sometimes mocked by former generations, disparagingly referred to as overly-sensitive or 'snowflakes'. I believe many young people desperately wish to be seen, heard and understood. This research could play an important role in improving therapists' relationships with young people. I hope CPs, through an increased understanding of the complexity of issues young-adults face concerning smartphones, may be able to build rapport and give clients a sense of being known by another. Indeed, the therapeutic relationship is often considered the single biggest predictor of successful therapy (Lambert and Barely, 2001), its most important factors include empathy, understanding, non-judgment/withholding assumptions, and patient expectations (Finsrud et al., 2022). Although many CPs may be very skilled in these areas, how much could they really be expected to understand and empathise with a client who is spending 8-hours/day engaged in a virtual-world the therapist has never had access to, in perhaps as little as 5 or 6 sessions? Education on the subject, understanding its common problems and benefits can act as a catalyst for empathy, strengthening the therapeutic alliance (Finsrud et al., 2022). It may help CPs from making uninformed assumptions, e.g. SM is bad and should be stopped; helping an ever-growing part of younger people's worlds, usually cordoned off from older generations, to feel known and understood, fostering trust and improving client expectations.

I hope this research may motivate the reader to learn more about these issues, use its findings to aid their clinical practice and disseminate findings to service providers, helping to give a voice to young adults, concerning a problem that disproportionately affects them and one which they currently feel they have little power to change.

4.8 Future research

Due to the rapidly evolving nature and increasing complexity of technology, continuous new research concerning smartphones/SM is essential. There's a scarcity of qualitative research in the field, hearing direct accounts of individual's experiences seems essential if we are to continue to move away from the inconsistencies aggregate research tends to produce, and uncover the underlying psychological and behavioural processes pertinent to user wellbeing (Yang et al., 2021). Due to the small scale of this study, future qualitative research would benefit from larger sample sizes, improving transferability, however in-depth accounts of multiple individual experiences can produce shared understanding of experiences, allowing for cautious transferability for specific groups (Smith et al., 2009). However, more qualitative and complementary quantitative research with larger samples would be advisable.

This study only had one male participant and the majority of participants were white British students, these demographics form the majority of samples in most other research. Future research would benefit from exploring how smartphones impact wellbeing amongst different ethnicities, genders and cultures, as these factors influence how individuals perceive and experience the world (Hwang et al., 2008). Indeed, Yang et al. (2018) demonstrated that there are significant differences in how males and females use smartphones, in general females tend to be more influenced by and dependant on their smartphones and display different interactions with wellbeing than males. Future qualitative research could explore homogenising gender in their samples. Cultural background has also been shown to have an important influence on how smartphone use interacts with wellbeing, problematic smartphone use and associated mental health problems tend to be more pronounced amongst western cultures (Elhai et al., 2019). Moreover, a study by Yin et al. (2019) found that SM sites had a larger relative negative influence on mental health in more individualistic cultures than in collectivist ones; thus, studying the relationship between smartphone use and wellbeing amongst different cultural backgrounds seems essential if we are to more comprehensively understand the relationship.

The findings from this study show participants derive many detriments and benefits from their smartphones, with small changes in behaviour, cognitions or context being very impactful. For instance, participants reported seeing images of peers on SM as enhancing connection and maintaining closeness despite distance, yet at other times they would see images of peers and self-compare, leading to anxiety and reduced self-esteem. The behaviour/app being used are identical, however, the psychological mechanisms differ, impacting wellbeing differentially. Participants reported various forms of addiction symptomatology, which for some participants, seemed to align

with 'true' addiction, however, others showed the symptomatology but were actually using smartphones due to a functional dependency or due to social pressure, not addiction.

These examples highlight the complexity of smartphone use and the limitations of using broad self-report measures, indeed previous research by Billieux et al. (2015) has shown that 18% of the highest scores on the Smartphone-Addiction-Scale (over addiction threshold) felt they were not addicted to their smartphones and 55% of lowest-scorers felt they were addicted. Thus, future research should focus on measuring the quality of use and underlying psychological processes (Kross et al., 2021). This might entail creating more refined quantitative measures or using triangulation by employing mixed-methods designs (Smith et al., 2009). Using a mixed-methods design may be particularly useful within this research context to continue contextualising the quantitative measures and also point out their potential shortcomings e.g. people feeling like they are addicted/not addicted to their phones but quantitative measures indicating otherwise, as described above. Moreover, mixed-methods can also help to address the limitations of qualitative research, e.g. identifying general trends and the ability to generalise findings to wider populations, thus, research claims can be made with more confidence by combining the two approaches (Tashakkori et al., 2012).

This research produced some specific findings of interest not previously/very infrequently appearing in the literature which warrant further research. The majority of previous research on social-comparison focuses on female body-image, although this was the most common form of comparison in this study, participants reported multiple objects of comparison that impacted wellbeing, including education, class, money, popularity and activity. These areas should also be investigated in future studies.

A very significant source of anxiety for participants was due to the social expectation to be online and continuously respond to messages, participants felt this caused tension in their relationships; having congruent social expectations with peers was viewed as an important factor in determining the success of friendships. I have rarely seen this finding before in the literature e.g. Childs and Holland (2022); it could be an important area of research as recently the prevalence of loneliness and relationship difficulties amongst young adults has greatly increased (Shafiq et al., 2024).

Another suggestion would be further investigating the role of awareness in protecting against the harms of smartphones and promoting healthy use. Participants felt an awareness of the common

positive and negative impacts of smartphone use was crucial to their wellbeing but very difficult to develop. Perhaps findings from this study and others e.g. Yang et al. (2021) and the aforementioned research on SM literacy, could form the basis of an experimental design, using psychoeducation on the most common positive and negative aspects of smartphone/SM use as an intervention to improve awareness. Many participants felt they would have greatly benefitted from external guidance, particularly when they first started using smartphones at an early age, completely unaware of its risks. It would be advisable to receive input from younger adults/adolescents in the development of psychoeducation, who understand contemporary smartphone/SM culture and its nuanced positive and negative effects.

Another potential area of research this study supports would be emotion-regulation based-interventions to minimise the harm caused by smartphones, as is suggested by other research e.g. Griffeon et al. (2021). Emotion-regulation strategies such as mindfulness or self-compassion, could be helpful in preventing problematic/compulsive smartphone use, reducing the need for smartphone use itself to be used as a maladaptive emotion-regulation strategy (Elhai et al., 2017), demonstrated by some participants in this study. Additionally, such strategies could be used to prevent worry, obsession, or critical self-narratives, often mentioned in this study as starting from acute emotional reactivity/upset upon seeing an upsetting image on SM. Participant's reported staring at images for long periods, or engaging in a type of online worry/obsession/rumination by clicking on related content then consequently being fed more problematic material by SM algorithms. Emotion-regulation strategies combined with an awareness of what aspects of SM could cause negative emotional-reactivity, could be promising in stopping these vicious cycles, as is often used effectively in CBT (Williams and Chellingsworth, 2010).

4.9 Strengths and Limitations

A main strength of this study was the participants, their ability to openly reflect upon their complex and emotionally sensitive experiences enabled this study to produce rich, meaningful data, creating important insights with direct significance to counselling psychology, that could be tentatively generalised to other young adults, particularly the female student population, an at-risk group in the context smartphone/SM use (Elhai et al., 2019; Smith et al., 2009). A common benefit of qualitative studies is allowing participants voices to be heard, this was a particular strength of this study. I was unaware of the extent to which participants felt unheard and abandoned, feeling that most others didn't understand, were in denial, or didn't take these issues seriously, there is a deep need for their voices to be heard.

I believe this study greatly improved participant awareness of their own issues. I was struck how a period of intentional reflection during interview allowed participants to make connections, deepen their understanding and enabled previously subconscious experience and feelings to become conscious. Perhaps the continuous, habitual and automatic nature of smartphone use and it's and social acceptability/normalisation, greatly obscures its impacts.

A limitation of the study was that the sample was self-selecting, this can be problematic as it may lead participants with common motivations to participate, leading to less diverse experience/opinion, compared to a random sample (Lopez and Whitehead, 2013). Although there was a wide variety of experience provided by the sample, this may still have influenced findings.

Sample size was another limitation, although a sample size of six, falls within Smith's et al. (2021) recommendations (4-10), a larger sample would have been preferable to obtain more varied, textured data and improve tentative transferability/generalisability. Unfortunately, due to difficulties in the recruitment process in a time-limited study, this was not possible. The demographics of the sample were also problematic. The sample only consisted of one male participant, whilst this was beneficial for homogeneity in IPA, it will mean these findings are less relevant to young men (Larkin et al., 2021). There may be several reasons for this inequality; research shows young women are the most at-risk group for smartphone-related problems (Elhai et al., 2019), potentially making the demographic more likely to volunteer, it may also be that males feel it is less socially acceptable to openly discuss emotional problems, further biasing the sample (Brody and Hall, 2010).

Furthermore, the sample was predominately white and highly educated, which is already overrepresented in the field. Costa (2018) believes that the dominance of studies in an Anglo-American context is leading to a tendency to associate their findings as stable properties of smartphones/SM, which may not be true of other cultural contexts. IPA views a person's experience as inseparable from their language and culture, thus individuals' smartphone experiences, derived meanings and usage patterns may differ widely in different socio-cultural contexts and should also be explored e.g., different educational levels, ethnicities and cultures.

More stringent inclusion criteria could have helped improved this studies homogeneity but was not possible due to time constraints. For example, what age participants first started using smartphones/SM, would have been useful to homogenise, as this seemed to impact their ongoing

development of smartphone use, related problems and personal development. Additionally, the youngest participant was 18 and the eldest was 24, although this wouldn't be viewed as a large age difference in much research, due to the rapid evolution of technology, this could have significant consequences on the subjective experience of using a smartphone and its available applications. Finally, potential participants with more severe mental-health difficulties were excluded from this study for ethical reasons, it is important this demographic is studied due to the negative correlation between smartphone use and wellbeing and should be a focus of future research (Elhai et al., 2017).

Finally, IPA's reliance on memory and interpretation could be viewed as a limitation. Participants sometimes recalled experiences that had happened several years ago. Dickson, Knussen and Flowers (2007), warn that memories can become distorted overtime and can be influenced by environment. Since participants first started using smartphones, their potential harmful effects have been increasingly reported in the media which could bias memory interpretation. Additionally, IPA relies on a double hermeneutic, participants interpret their own experience which is then interpreted by the researcher, expanding the knowledge generated through intersubjective meaning-making (Larkin et al., 2021). Thus, it is notable that a different researcher would have created a different intersubjective environment and thus different results.

4.10 Conclusion

The relationship between Smartphone/SM use and wellbeing has been studied primarily using quantitative research designs which have tended to use broad aggregate questionnaires to measure complex variables e.g. 'smartphone use, SM use, Instagram use, screentime', these measures have often failed to capture the complexity of the relationship as there are a plethora of ways smartphone use can impact wellbeing. As research has progressed there has been a shift towards using more refined quantitative measures, mixed methods and qualitative designs. These studies have provided a more detailed and nuanced understanding of the relationship. Research findings are now indicating that it's the quality of use that matters most as opposed to quantity i.e., the types of psychological processes that certain types of smartphone use elicit. This is forming a clearer picture of the relationship with some types of use being associated with positive wellbeing states e.g. communication with close peers, and some types of use with negative states e.g. social comparison to peers. However, there is very little research looking into the experiences of young adults and their sense making with regards to the relationship between smartphone use and wellbeing. This study aimed to address that gap in the literature, hoping to contextualise quantitative findings and reveal new insights into the relationship.

Hearing first-hand accounts of the struggles young adults are facing when using smartphones, was at times difficult to hear, especially when considering the magnitude of the problem and the age of which it usually begins for people; though, simultaneously participants cited many profound, life altering benefits – the picture is indeed a complex one. This research has only cemented my conviction that this is a deeply important issue, that was truly brought to life for me through narratives of lived-experience. I believe now more than ever that this issue needs our urgent and careful attention. From carrying out this research I feel my views on smartphones have shifted, after speaking with participants I now feel more aware of how important smartphones are to them and appreciate the profound benefits they bring to young adults, my initial view was perhaps over-pathologising, honing in on the only the negatives. However, I still recognise their pathological side, particularly relating to certain design features of SM apps which are far from transparent and seem to put profit ahead of user wellbeing, which I believe should be regulated. Nonetheless, I believe I now have a more balanced and holistic view of smartphone use, recognising both the good and bad.

This study has offered detailed insights into how young adults use their smartphones and how they make sense of its effects on wellbeing, adding to the growing body of research. A common criticism cited in the literature is that much prior research has failed to capture the complexity of interaction between modern-day smartphone use and mental-wellbeing. Indeed, I was shocked at the myriad of interactions described by participants and the extent of variation possible, not only between the participants but within the individuals themselves, with slight contextual nuances seemingly able to radically alter the implications for their wellbeing, further highlighting the importance of in-depth understanding. I feel this study has deepened our understanding of the phenomena and provided important insights that I hope will be of value to researchers, parents, teachers and mental-health practitioners. Findings from the study have highlighted some of the ways young people interact with their smartphones with both positive and negative implications for their wellbeing, for example, the damaging effects of positivity bias and lack of context when viewing images on SM, the impacts of social comparison on identity development, challenging new social expectations, but also, great freedom, connectivity and utility. All of this occurring within the variable ‘smartphone use’. A salient and overarching theme of the research was that of awareness i.e. being aware of the risks and benefits to wellbeing brought about by smartphone use. Participants felt this was profoundly important to using smartphones in a healthy way, enabling them to (at least partially) avoid the negatives and maximise the positives. Many felt that smartphone/SM awareness should be taught in schools, as none of them received any education on the subject. Fortunately today, education

programs have started in schools but researchers and politicians feel they still need ongoing research and development to become more effective. It is hoped this research could help design psychoeducation programs, or serve to educate the health care professionals, teachers and parents, by highlighting the importance of quality of use and some of the ways young people are interacting with their smartphones which seem to have profound impacts on wellbeing.

For me, the most salient product of this study lies in providing a platform for participants to voice their opinions on a matter that primarily impacts them. I had a real sense participants felt this issue, and their opinions on it, had been largely over-looked by society and I felt their views on the matter were of exceptional value. I hope that participating in this study was also of value to participants, helping them to better understand their own relationship with their smartphones. I believe in many cases it may have been, as participants seemed to be actively making sense of how their wellbeing was affected right there during the interview. Perhaps this period of intentional reflection briefly opened up a space where it was possible to contemplate an examine such phenomena usually obfuscated by its highly normalised, habitual and automatic nature. This in itself was a key finding of the research and one which I also hope may have personally helped participants.

References

- Abi-Jaoude, E., Naylor, K. T., & Pignatiello, A. (2020). Smartphones, social media use and youth mental health. *Cmaj*, 192(6), E136–E141.
- Adair, J. G. (1984). The Hawthorne effect: a reconsideration of the methodological artifact. *Journal of Applied Psychology*, 69(2), 334.
- Akbari, M., Seydavi, M., Palmieri, S., Mansueto, G., Caselli, G., & Spada, M. M. (2021). Fear of missing out (FoMO) and internet use: A comprehensive systematic review and meta-analysis. *Journal of Behavioral Addictions*, 10(4), 879–900.
- Almunawar, M. N., Anshari, M., Susanto, H., & Chen, C. K. (2018). How people choose and use their Smartphones. *Management Strategies and Technology Fluidity in the Asian Business Sector* (pp. 235–252). IGI Global.
- Anshari, M., Almunawar, M. N., Shahrill, M., Wicaksono, D. K., & Huda, M. (2017). Smartphones usage in the classrooms: Learning aid or interference? *Education and Information Technologies*, 22, 3063–3079.
- Augner, C., Vlasak, T., Aichhorn, W., & Barth, A. (2022). Tackling the ‘digital pandemic’: The effectiveness of psychological intervention strategies in problematic Internet and smartphone use—A meta-analysis. *Australian & New Zealand Journal of Psychiatry*, 56(3), 219–229.
- Bell, B. T., Taylor, C., Paddock, D., & Bates, A. (2022). Digital Bodies: A controlled evaluation of a brief classroom-based intervention for reducing negative body image among adolescents in the digital age. *British Journal of Educational Psychology*, 92(1), 280–298.
- Bhargava, V. R., & Velasquez, M. (2021). Ethics of the attention economy: The problem of social media addiction. *Business Ethics Quarterly*, 31(3), 321–359.
- Bhaskar, R. (1978). On the possibility of social scientific knowledge and the limits of naturalism. *Journal for the Theory of Social Behaviour*, 8(1), 1–28.

Bhaskar, R., Collier, A., Lawson, T., & Norrie, A. (1998). Critical realism. Paper presented at the *Proceedings of the Standing Conference on Realism and Human Sciences, Bristol, UK, , 4*

Billieux, J., Maurage, P., Lopez-Fernandez, O., Kuss, D. J., & Griffiths, M. D. (2015a). Can disordered mobile phone use be considered a behavioral addiction? An update on current evidence and a comprehensive model for future research. *Current Addiction Reports, 2*(2), 156–162.

Billieux, J., Maurage, P., Lopez-Fernandez, O., Kuss, D. J., & Griffiths, M. D. (2015b). Can disordered mobile phone use be considered a behavioral addiction? An update on current evidence and a comprehensive model for future research. *Current Addiction Reports, 2*(2), 156–162.

Brailovskaia, J., Delveaux, J., John, J., Wicker, V., Noveski, A., Kim, S., Schillack, H., & Margraf, J. (2023). Finding the “sweet spot” of smartphone use: Reduction or abstinence to increase well-being and healthy lifestyle?! An experimental intervention study. *Journal of Experimental Psychology: Applied, 29*(1), 149.

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health, 11*(4), 589–597.

Brody, L. R., & Hall, J. A. (2010). Gender, emotion, and socialization. *Handbook of Gender Research in Psychology: Volume 1: Gender Research in General and Experimental Psychology, , 429–454.*

Carter, B., Ahmed, N., Cassidy, O., Pearson, O., Calcia, M., Mackie, C., & Kalk, N. J. (2024). ‘There’s more to life than staring at a small screen’: a mixed methods cohort study of problematic smartphone use and the relationship to anxiety, depression and sleep in students aged 13–16 years old in the UK. *BMJ Ment Health, 27*(1)

Chantler, K. (2005). From disconnection to connection: ‘Race’, gender and the politics of therapy. *British Journal of Guidance & Counselling, 33*(2), 239–256.

Charmaz, K. (2014). Constructing grounded theory.

Childs, C., & Holland, F. (2022). Young peoples' lived experiences of shifts between face-to-face and smartphone interactions: an interpretative phenomenological analysis. *Journal of Youth Studies*, , 1–16.

Chotpitayasunondh, V., & Douglas, K. M. (2016). How “phubbing” becomes the norm: The antecedents and consequences of snubbing via smartphone. *Computers in Human Behavior*, 63, 9–18.

Chotpitayasunondh, V., & Douglas, K. M. (2018). The effects of “phubbing” on social interaction. *Journal of Applied Social Psychology*, 48(6), 304–316.

Clark, T., Foster, L., Bryman, A., & Sloan, L. (2021). *Bryman's social research methods*. Oxford university press.

Cohen, J. D. (2005). The vulcanization of the human brain: A neural perspective on interactions between cognition and emotion. *Journal of Economic Perspectives*, 19(4), 3–24.

Conlin, M., & Sillence, E. (2021). Exploring British adolescents' views and experiences of problematic smartphone use and smartphone etiquette. *Journal of Gambling Issues*, 46, 279–301.

Conroy, D., Chadwick, D., Fullwood, C., & Lloyd, J. (2023). “You have to know how to live with it without getting to the addiction part”: British young adult experiences of smartphone overreliance and disconnectivity. *Psychology of Popular Media*, 12(4), 471.

Costa, E. (2018). Affordances-in-practice: An ethnographic critique of social media logic and context collapse. *New Media & Society*, 20(10), 3641–3656.

Costello, E. J., Copeland, W., & Angold, A. (2011). Trends in psychopathology across the adolescent years: what changes when children become adolescents, and when adolescents become adults? *Journal of Child Psychology and Psychiatry*, 52(10), 1015–1025.

Coyne, S. M., Rogers, A. A., Zurcher, J. D., Stockdale, L., & Booth, M. (2020). Does time spent using social media impact mental health?: An eight year longitudinal study. *Computers in Human Behavior*, 104, 106160.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Dai, C., Tai, Z., & Ni, S. (2021). Smartphone use and psychological well-being among college students in China: a qualitative assessment. *Frontiers in Psychology*, 12, 708970.

Davey, S., Davey, A., Raghav, S. K., Singh, J. V., Singh, N., Blachnio, A., & Przepiórkaa, A. (2018). Predictors and consequences of “Phubbing” among adolescents and youth in India: An impact evaluation study. *Journal of Family & Community Medicine*, 25(1), 35.

David, M. E., & Roberts, J. A. (2017). Phubbed and alone: Phone snubbing, social exclusion, and attachment to social media. *Journal of the Association for Consumer Research*, 2(2), 155–163.

de Hesselde, L. C., & Montag, C. (2024). Effects of a 14-day social media abstinence on mental health and well-being: results from an experimental study. *BMC Psychology*, 12(1), 141.

Dearnley, C. (2005). A reflection on the use of semi-structured interviews. *Nurse Researcher*, 13(1)

Denzin, N. K., & Lincoln, Y. S. (2011). *The Sage handbook of qualitative research*. sage.

Department of Education (2024, 19 February). *Guidance Mobile phones in schools*. www. gov.uk. <https://www.gov.uk/government/publications/mobile-phones-in-schools>

Draucker, C. B., Martsof, D. S., & Poole, C. (2009). Developing distress protocols for research on sensitive topics. *Archives of Psychiatric Nursing*, 23(5), 343–350.

du Plock, S. (2015). Philosophical issues in counselling psychology. *Counselling Psychology-A Textbook for Study and Practice*, , 36–51.

Dugas, M. J., Savard, P., Gaudet, A., Turcotte, J., Laugesen, N., Robichaud, M., Francis, K., & Koerner, N. (2007). Can the components of a cognitive model predict the severity of generalized anxiety disorder? *Behavior Therapy*, 38(2), 169–178.

Elhai, J. D., Dvorak, R. D., Levine, J. C., & Hall, B. J. (2017). Problematic smartphone use: A conceptual overview and systematic review of relations with anxiety and depression psychopathology. *Journal of Affective Disorders*, 207, 251–259.

Elhai, J. D., Levine, J. C., & Hall, B. J. (2019). The relationship between anxiety symptom severity and problematic smartphone use: A review of the literature and conceptual frameworks. *Journal of Anxiety Disorders*, 62, 45–52.

Elhai, J. D., Tiamiyu, M., & Weeks, J. (2018). Depression and social anxiety in relation to problematic smartphone use. *Internet Research*,

Elhai, J. D., Yang, H., & Montag, C. (2020). Fear of missing out (FOMO): overview, theoretical underpinnings, and literature review on relations with severity of negative affectivity and problematic technology use. *Brazilian Journal of Psychiatry*, 43, 203–209.

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). Facebook Intensity Scale. *Journal of Computer-Mediated Communication*,

Ellison, N. B., Vitak, J., Gray, R., & Lampe, C. (2014). Cultivating social resources on social network sites: Facebook relationship maintenance behaviors and their role in social capital processes. *Journal of Computer-Mediated Communication*, 19(4), 855–870.

Ernala, S. K., Burke, M., Leavitt, A., & Ellison, N. B. (2020). How well do people report time spent on Facebook? An evaluation of established survey questions with recommendations. Paper presented at the *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, 1–14.

Fassinger, R., & Morrow, S. L. (2013). Toward best practices in quantitative, qualitative, and mixed-method research: A social justice perspective. *Journal for Social Action in Counseling & Psychology*, 5(2), 69–83.

Ferguson, C. J., Muñoz, M. E., Garza, A., & Galindo, M. (2014). Concurrent and prospective analyses of peer, television and social media influences on body dissatisfaction, eating disorder symptoms and life satisfaction in adolescent girls. *Journal of Youth and Adolescence*, 43, 1–14.

Fernández-Rovira, C., & Giraldo-Luque, S. (2021, Nov 1,). *Hootsuite & We Are Social. (2021). Digital 2021: United Kingdom. . Sustainability* (Basel, Switzerland). Retrieved from: <https://datareportal.com/reports/digital-2021-united-kingdom>

Festinger, L. (1957). Social comparison theory. *Selective Exposure Theory*, 16, 401.

Finlay, L. (2005). " Reflexive embodied empathy": A phenomenology of participant-researcher intersubjectivity. *The Humanistic Psychologist*, 33(4), 271–292.

Finlay, L. (2011). *Phenomenology for therapists: Researching the lived world*. John Wiley & Sons.

Finsrud, I., Nissen-Lie, H. A., Vrabel, K., Høstmælingen, A., Wampold, B. E., & Ulvenes, P. G. (2022). It's the therapist and the treatment: The structure of common therapeutic relationship factors. *Psychotherapy Research*, 32(2), 139–150.

Frances, A. J., & Widiger, T. (2012). Psychiatric diagnosis: Lessons from the DSM-IV past and cautions for the DSM-5 future. *Annual Review of Clinical Psychology*, 8, 109–130.

Gergen, K. J. (1999). Agency: Social construction and relational action. *Theory & Psychology*, 9(1), 113–115.

Giorgi, A. (2010). Phenomenology and the practice of science. *Existential Analysis: Journal of the Society for Existential Analysis*, 21(1)

Glaser, B., & Strauss, A. (2017). *Discovery of grounded theory: Strategies for qualitative research*. Routledge.

Gordon, C. S., Rodgers, R. F., Slater, A. E., McLean, S. A., Jarman, H. K., & Paxton, S. J. (2020). A cluster randomized controlled trial of the SoMe social media literacy body image and wellbeing program for adolescent boys and girls: Study protocol. *Body Image*, 33, 27–37.

Grieve, R., Indian, M., Witteveen, K., Tolan, G. A., & Marrington, J. (2013). Face-to-face or Facebook: Can social connectedness be derived online? *Computers in Human Behavior*, 29(3), 604–609.

Griffioen, N., Scholten, H., Lichtwarck-Aschoff, A., Van Rooij, M., & Granic, I. (2021). Everyone does it—differently: A window into emerging adults' smartphone use. *Humanities and Social Sciences Communications*, 8(1), 1–11.

Griffioen, N., Van Rooij, M. M., Lichtwarck-Aschoff, A., & Granic, I. (2020). A stimulated recall method for the improved assessment of quantity and quality of social media use. *Journal of Medical Internet Research*, 22(1), e15529.

- Griffiths, M. (2005). A 'components' model of addiction within a biopsychosocial framework. *Journal of Substance Use*, 10(4), 191–197.
- Grondin, J. (2015). The hermeneutical circle. *A Companion to Hermeneutics*, , 299–305.
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of Qualitative Research*, 2(163-194), 105.
- Gül, H., Firat, S., Sertçelik, M., Gül, A., Gürel, Y., & Kılıç, B. G. (2019). Cyberbullying among a clinical adolescent sample in Turkey: effects of problematic smartphone use, psychiatric symptoms, and emotion regulation difficulties. *Psychiatry and Clinical Psychopharmacology*, 29(4), 547–557.
- Haidt, J. (2024). *The anxious generation: How the great rewiring of childhood is causing an epidemic of mental illness*. Random House.
- Harkin, L. J., & Kuss, D. (2021). "My smartphone is an extension of myself": A holistic qualitative exploration of the impact of using a smartphone. *Psychology of Popular Media*, 10(1), 28.
- Harré, R. (2016). Idiographic methods in a criminal justice system. *Methods of Psychological Intervention*, , 163–173.
- Harter, S. (2015). *The construction of the self: Developmental and sociocultural foundations*. Guilford Publications.
- Hawi, N. S., & Samaha, M. (2017). Relationships among smartphone addiction, anxiety, and family relations. *Behaviour & Information Technology*, 36(10), 1046–1052.
- Haynes, T. (2018). No title. *Dopamine, Smartphones & You: A Battle for Your Time*. Harvard University,
- Hermawan, H., Mahardika, F., Darmayanti, I., Sumantri, R. B. B., Saputra, D. I. S., & Aminuddin, A. (2023a). New Media as a Tools to Improve Creative Thinking: A Systematic Literature Review. Paper presented at the 2023 IEEE 7th International Conference on Information Technology, Information Systems and Electrical Engineering (ICITISEE), 64–69.
- Hermawan, H., Mahardika, F., Darmayanti, I., Sumantri, R. B. B., Saputra, D. I. S., & Aminuddin, A. (2023b). New Media as a Tools to Improve Creative Thinking: A Systematic Literature Review.

Paper presented at the 2023 IEEE 7th International Conference on Information Technology, Information Systems and Electrical Engineering (ICITISEE), 64–69.

Hertlein, K. M. (2012). Digital dwelling: Technology in couple and family relationships. *Family Relations*, 61(3), 374–387.

Hickman, C., Marks, E., Pihkala, P., Clayton, S., Lewandowski, R. E., Mayall, E. E., Wray, B., Mellor, C., & Van Susteren, L. (2021). Climate anxiety in children and young people and their beliefs about government responses to climate change: a global survey. *The Lancet Planetary Health*, 5(12), e863–e873.

Holtzman, S., Kushlev, K., Wozny, A., & Godard, R. (2021). Long-distance texting: Text messaging is linked with higher relationship satisfaction in long-distance relationships. *Journal of Social and Personal Relationships*, 38(12), 3543–3565.

Horwood, S., Anglim, J., & Mallawaarachchi, S. R. (2021). Problematic smartphone use in a large nationally representative sample: Age, reporting biases, and technology concerns. *Computers in Human Behavior*, 122, 106848.

Hou, Y., Xiong, D., Jiang, T., Song, L., & Wang, Q. (2019). Social media addiction: Its impact, mediation, and intervention. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 13(1)

House of Commons Education Committee (2024, 25 May). *Screen time: impacts on education and wellbeing*. [www.ukparliament.com](https://www.ukparliament.com/publications/parliament.uk/pa/cm5804/cmselect/meduc/118/report.html). <https://publications.parliament.uk/pa/cm5804/cmselect/meduc/118/report.html>

Husserl, E. (1927). Phenomenology. For Encyclopaedia Britannica (R. Palmer, Trans. and revised). *JA Smith, P. Flowers, & M. Larkin. (2009). Interpretative Phenomenological Analysis: Theory, Method and Research. Los Angeles: SAGE,*

Husserl, E., Alston, W. P., & Nakhnikian, G. (1964). *The idea of phenomenology*. Nijhoff The Hague.

Hwang, W., Myers, H. F., Abe-Kim, J., & Ting, J. Y. (2008). A conceptual paradigm for understanding culture's impact on mental health: The cultural influences on mental health (CIMH) model. *Clinical Psychology Review, 28*(2), 211–227.

Jaynes, V. (2020). The social life of screenshots: the power of visibility in teen friendship groups. *New Media & Society, 22*(8), 1378–1393.

Jensen, M., George, M. J., Russell, M. R., & Odgers, C. L. (2019a). Young adolescents' digital technology use and mental health symptoms: Little evidence of longitudinal or daily linkages. *Clinical Psychological Science, 7*(6), 1416–1433.

Jensen, M., George, M. J., Russell, M. R., & Odgers, C. L. (2019b). Young adolescents' digital technology use and mental health symptoms: Little evidence of longitudinal or daily linkages. *Clinical Psychological Science, 7*(6), 1416–1433.

Kalk, N. J., Downs, J., Clark, B., & Carter, B. (2024). Problematic smartphone use: What can teenagers and parents do to reduce use? *Acta Paediatrica,*

Kalpidou, M., Costin, D., & Morris, J. (2011a). The relationship between Facebook and the well-being of undergraduate college students. *CyberPsychology, Behavior, and Social Networking, 14*(4), 183–189.

Kalpidou, M., Costin, D., & Morris, J. (2011b). The relationship between Facebook and the well-being of undergraduate college students. *CyberPsychology, Behavior, and Social Networking, 14*(4), 183–189.

Kardefelt-Winther, D., Heeren, A., Schimmenti, A., Van Rooij, A., Maurage, P., Carras, M., Edman, J., Blaszczynski, A., Khazaal, Y., & Billieux, J. (2017). How can we conceptualize behavioural addiction without pathologizing common behaviours? *Addiction, 112*(10), 1709–1715.

Kardefelt-Winther, D. (2014). A conceptual and methodological critique of internet addiction research: Towards a model of compensatory internet use. *Computers in Human Behavior, 31,* 351–354.

Karnaze, A., Grevelding, K., Marquis-Eydman, T., & McHugh, D. (2021). Contextualizing adolescents' self-awareness of problematic mobile phone use: a preliminary study. *F1000Research*, 10, 237.

Kauhanen, L., Wan Mohd Yunus, W. M. A., Lempinen, L., Peltonen, K., Gyllenberg, D., Mishina, K., Gilbert, S., Bastola, K., Brown, J. S., & Sourander, A. (2023a). A systematic review of the mental health changes of children and young people before and during the COVID-19 pandemic. *European Child & Adolescent Psychiatry*, 32(6), 995–1013.

Kauhanen, L., Wan Mohd Yunus, W. M. A., Lempinen, L., Peltonen, K., Gyllenberg, D., Mishina, K., Gilbert, S., Bastola, K., Brown, J. S., & Sourander, A. (2023b). A systematic review of the mental health changes of children and young people before and during the COVID-19 pandemic. *European Child & Adolescent Psychiatry*, 32(6), 995–1013.

Keles, B., McCrae, N., & Grealish, A. (2020). A systematic review: the influence of social media on depression, anxiety and psychological distress in adolescents. *International Journal of Adolescence and Youth*, 25(1), 79–93.

Kelle, U., & Erzberger, C. (2004). 4. 5 Qualitative and quantitative methods: not in opposition. *A Campion to Qualitative Research*, , 172–177.

Kerkhof, P., Finkenauer, C., & Muusses, L. D. (2011). Relational consequences of compulsive Internet use: A longitudinal study among newlyweds. *Human Communication Research*, 37(2), 147–173.

Keyes, K. M., Gary, D., O'Malley, P. M., Hamilton, A., & Schulenberg, J. (2019). Recent increases in depressive symptoms among US adolescents: trends from 1991 to 2018. *Social Psychiatry and Psychiatric Epidemiology*, 54, 987–996.

Keyte, R., Mullis, L., Egan, H., Hussain, M., Cook, A., & Mantzios, M. (2020). Self-Compassion and Instagram Use Is Explained by the Relation to Anxiety, Depression, and Stress. *Journal of Technology in Behavioral Science*, , 1–6.

Kil, N., Kim, J., McDaniel, J. T., Kim, J., & Kensinger, K. (2021). Examining associations between smartphone use, smartphone addiction, and mental health outcomes: A cross-sectional study of college students. *Health Promotion Perspectives*, 11(1), 36.

Kim, H., Min, J., Kim, H., & Min, K. (2019). Association between psychological and self-assessed health status and smartphone overuse among Korean college students. *Journal of Mental Health, 28*(1), 11–16.

Kim, S., Park, J., Kim, H., Pan, Z., Lee, Y., & McIntyre, R. S. (2019). The relationship between smartphone addiction and symptoms of depression, anxiety, and attention-deficit/hyperactivity in South Korean adolescents. *Annals of General Psychiatry, 18*(1), 1–8.

Kim, Y., Jang, H. M., Lee, Y., Lee, D., & Kim, D. (2018). Effects of internet and smartphone addictions on depression and anxiety based on propensity score matching analysis. *International Journal of Environmental Research and Public Health, 15*(5), 859.

Knowles, M. S. (1984). Theory of andragogy.

Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D. S., Lin, N., Shablack, H., Jonides, J., & Ybarra, O. (2013). Facebook use predicts declines in subjective well-being in young adults. *PloS One, 8*(8), e69841.

Kross, E., Verduyn, P., Sheppes, G., Costello, C. K., Jonides, J., & Ybarra, O. (2021). Social media and well-being: Pitfalls, progress, and next steps. *Trends in Cognitive Sciences, 25*(1), 55–66.

Kushlev, K., Dwyer, R., & Dunn, E. W. (2019a). The social price of constant connectivity: Smartphones impose subtle costs on well-being. *Current Directions in Psychological Science, 28*(4), 347–352.

Kushlev, K., Dwyer, R., & Dunn, E. W. (2019b). The social price of constant connectivity: Smartphones impose subtle costs on well-being. *Current Directions in Psychological Science, 28*(4), 347–352.

Kuss, D. J., & Griffiths, M. D. (2017). Social networking sites and addiction: Ten lessons learned. *International Journal of Environmental Research and Public Health, 14*(3), 311.

Kwon, M., Kim, D., Cho, H., & Yang, S. (2013a). The smartphone addiction scale: development and validation of a short version for adolescents. *PloS One, 8*(12), e83558.

Kwon, M., Lee, J., Won, W., Park, J., Min, J., Hahn, C., Gu, X., Choi, J., & Kim, D. (2013b). Development and validation of a smartphone addiction scale (SAS). *PloS One, 8*(2), e56936.

- Lambert, M. J., & Barley, D. E. (2001). Research summary on the therapeutic relationship and psychotherapy outcome. *Psychotherapy: Theory, Research, Practice, Training*, 38(4), 357.
- Lane, D. A., & Corrie, S. (2006). Counselling psychology: Its influences and future. *Counselling Psychology Review-British Psychological Society*, 21(1), 12.
- Lapierre, M. A., Zhao, P., & Custer, B. E. (2019). Short-term longitudinal relationships between smartphone use/dependency and psychological well-being among late adolescents. *Journal of Adolescent Health*, 65(5), 607–612.
- Lapointe, L., Boudreau-Pinsonneault, C., & Vaghefi, I. (2013). Is smartphone usage truly smart? A qualitative investigation of IT addictive behaviors. Paper presented at the 2013 46th Hawaii International Conference on System Sciences, 1063–1072.
- Larkin, M., Flowers, P., & Smith, J. A. (2021). Interpretative phenomenological analysis: Theory, method and research.
- Lee, D. (2019). A global portrait of counselling psychologists' characteristics, perspectives, and professional behaviors. *A global portrait of counselling psychology* (pp. 1–22). Routledge.
- LEKSHMI, M. K. C. (2023). 3. Schmuck, D., Karsay, K., Matthes, J., & Stevic, A.(2019).“Looking Up and Feeling Down”. The influence of mobile social networking site use on upward social comparison, self-esteem, and well-being of adult smartphone users. *Telematics and informatics*, 42, 101240. *Ethical Implication Of*, 18(3), 78.
- Lepp, A. (2014). The intersection of cell phone use and leisure: A call for research. *Journal of Leisure Research*, 46(2), 218–225.
- Li, L., Niu, Z., Mei, S., & Griffiths, M. D. (2022). A network analysis approach to the relationship between fear of missing out (FoMO), smartphone addiction, and social networking site use among a sample of Chinese university students. *Computers in Human Behavior*, 128, 107086.
- Liu, H., Soh, K. G., Samsudin, S., Rattanakoses, W., & Qi, F. (2022). Effects of exercise and psychological interventions on smartphone addiction among university students: a systematic review. *Frontiers in Psychology*, 13, 1021285.

Liu, Q., Yang, X., Hu, Y., & Zhang, C. (2020). Peer victimization, self-compassion, gender and adolescent mobile phone addiction: Unique and interactive effects. *Children and Youth Services Review, 118*, 105397.

Liu, Q., Zhou, Z., Yang, X., Niu, G., Tian, Y., & Fan, C. (2017). Upward social comparison on social network sites and depressive symptoms: A moderated mediation model of self-esteem and optimism. *Personality and Individual Differences, 113*, 223–228.

Lo Iacono, V., Symonds, P., & Brown, D. H. (2016). Skype as a tool for qualitative research interviews. *Sociological Research Online, 21*(2), 103–117.

Lopez, V., & Whitehead, D. (2013). Sampling data and data collection in qualitative research. *Nursing & Midwifery Research: Methods and Appraisal for Evidence-Based Practice, 123*, 140.

Lopez-Fernandez, O., Kuss, D. J., Romo, L., Morvan, Y., Kern, L., Graziani, P., Rousseau, A., Rumpf, H., Bischof, A., & Gässler, A. (2017). Self-reported dependence on mobile phones in young adults: A European cross-cultural empirical survey. *Journal of Behavioral Addictions, 6*(2), 168–177.

Lukoff, K., Yu, C., Kientz, J., & Hiniker, A. (2018). What makes smartphone use meaningful or meaningless? *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, 2*(1), 1–26.

Lup, K., Trub, L., & Rosenthal, L. (2015). Instagram# instasad?: exploring associations among instagram use, depressive symptoms, negative social comparison, and strangers followed. *Cyberpsychology, Behavior, and Social Networking, 18*(5), 247–252.

Lyons, A. C. E. Holliday, A. (2002) Doing and Writing Qualitative Research. London: Sage.

Macit, H. B., Macit, G., & Güngör, O. (2018). A research on social media addiction and dopamine driven feedback. *Mehmet Akif Ersoy Üniversitesi İktisadi Ve İdari Bilimler Fakültesi Dergisi, 5*(3), 882–897.

Mahsud, M., Khalaf, A. J. M., Mahsud, Z., Afzal, A., & Afzal, F. (2021). Addiction to smartphones leading to distraction in the classrooms: Effect of different cultures. *Journal of Statistics and Management Systems, 24*(4), 741–754.

Manago, A. M., Brown, G., Lawley, K. A., & Anderson, G. (2020). Adolescents' daily face-to-face and computer-mediated communication: Associations with autonomy and closeness to parents and friends. *Developmental Psychology*, 56(1), 153.

Marciano, L., Driver, C. C., Schulz, P. J., & Camerini, A. (2022). Dynamics of adolescents' smartphone use and well-being are positive but ephemeral. *Scientific Reports*, 12(1), 1316.

Meier, A., & Johnson, B. K. (2022). Social comparison and envy on social media: A critical review. *Current Opinion in Psychology*, 45, 101302.

Montag, C., Lachmann, B., Herrlich, M., & Zweig, K. (2019). Addictive features of social media/messenger platforms and freemium games against the background of psychological and economic theories. *International Journal of Environmental Research and Public Health*, 16(14), 2612.

Neustaedter, C., & Greenberg, S. (2012). Intimacy in long-distance relationships over video chat. Paper presented at the *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 753–762.

Oates, J., Carpenter, D., Fisher, M., Goodson, S., Hannah, B., Kwiatowski, R., Prutton, K., Reeves, D., & Wainwright, T. (2021). BPS code of human research ethics. Paper presented at the

Odgers, C. L., & Jensen, M. R. (2020). Annual research review: Adolescent mental health in the digital age: Facts, fears, and future directions. *Journal of Child Psychology and Psychiatry*, 61(3), 336–348.

ohne Smartphone, F. T. (2020). Five days without a smartphone. *Studies in Communication and Media*, 9(3), 394–420.

Olson, J. A., Sandra, D. A., Colucci, É S., Al Bikaii, A., Chmoulevitch, D., Nahas, J., Raz, A., & Veissière, S. P. (2022). Smartphone addiction is increasing across the world: A meta-analysis of 24 countries. *Computers in Human Behavior*, 129, 107138.

Orben, A. (2020). Teenagers, screens and social media: a narrative review of reviews and key studies. *Social Psychiatry and Psychiatric Epidemiology*, 55(4), 407–414.

- Owen, B., Heisterkamp, B., Halfmann, A., & Vorderer, P. (2018). Trait mindfulness and problematic smartphone use. *Empirical Studies of Contemplative Practices*, , 181–205.
- Panova, T., & Carbonell, X. (2018). Is smartphone addiction really an addiction? *Journal of Behavioral Addictions*, 7(2), 252–259.
- Park, C. S. (2019). Examination of smartphone dependence: Functionally and existentially dependent behavior on the smartphone. *Computers in Human Behavior*, 93, 123–128.
- Pietkiewicz, I., & Smith, J. A. (2014). A practical guide to using interpretative phenomenological analysis in qualitative research psychology. *Psychological Journal*, 20(1), 7–14.
- Polanco-Levicán, K., & Salvo-Garrido, S. (2022). Understanding social media literacy: A systematic review of the concept and its competences. *International Journal of Environmental Research and Public Health*, 19(14), 8807.
- Poushter, J. (2016). Smartphone ownership and internet usage continues to climb in emerging economies. *Pew Research Center*, 22(1), 1–44.
- Reavley, N., & Jorm, A. F. (2010a). Prevention and early intervention to improve mental health in higher education students: a review. *Early Intervention in Psychiatry*, 4(2), 132–142.
- Reavley, N., & Jorm, A. F. (2010b). Prevention and early intervention to improve mental health in higher education students: a review. *Early Intervention in Psychiatry*, 4(2), 132–142.
- Reinecke, L., & Trepte, S. (2014). Authenticity and well-being on social network sites: A two-wave longitudinal study on the effects of online authenticity and the positivity bias in SNS communication. *Computers in Human Behavior*, 30, 95–102.
- Robinson, T. E., & Berridge, K. C. (2001). Incentive-sensitization and addiction. *Addiction*, 96(1), 103–114.
- Rogers, C. R. (1957). The necessary and sufficient conditions of therapeutic personality change. *Journal of Consulting Psychology*, 21(2), 95.
- Rosen, L. D., Whaling, K., Rab, S., Carrier, L. M., & Cheever, N. A. (2013). Is Facebook creating “iDisorders”? The link between clinical symptoms of psychiatric disorders and technology use, attitudes and anxiety. *Computers in Human Behavior*, 29(3), 1243–1254.

Samuolis, J., Barcellos, M., LaFlam, J., Belson, D., & Berard, J. (2015). Mental health issues and their relation to identity distress in college students. *Identity, 15*(1), 66–73.

Sayer, A. (2004). Why critical realism. *Critical Realist Applications in Organisation and Management Studies, 11*(6)

Sbarra, D. A., Briskin, J. L., & Slatcher, R. B. (2019a). Smartphones and close relationships: The case for an evolutionary mismatch. *Perspectives on Psychological Science, 14*(4), 596–618.

Sbarra, D. A., Briskin, J. L., & Slatcher, R. B. (2019b). Smartphones and close relationships: The case for an evolutionary mismatch. *Perspectives on Psychological Science, 14*(4), 596–618.

Schleiermacher, F. (1998). Hermeneutics and criticism and other writings.

Sela, A., Rozenboim, N., & Ben-Gal, H. C. (2022). Smartphone use behavior and quality of life: What is the role of awareness? *PloS One, 17*(3), e0260637.

Shafiq, B., Ali, A., & Iqbal, H. (2024). Perfectionism, mattering and loneliness in young adulthood of Generation-Z. *Heliyon, 10*(1)

Shakya, H. B., & Christakis, N. A. (2017). Association of Facebook use with compromised well-being: A longitudinal study. *American Journal of Epidemiology, 185*(3), 203–211.

Shalf, J. (2020). The future of computing beyond Moore’s Law. *Philosophical Transactions of the Royal Society A, 378*(2166), 20190061.

Sherry Turkle. (2017). *Alone together : Why we expect more from technology and less from each other.* . Hachette: UK.

Shin, D., Shin, Y., Choo, H., & Beom, K. (2011). Smartphones as smart pedagogical tools: Implications for smartphones as u-learning devices. *Computers in Human Behavior, 27*(6), 2207–2214.

Sica, L. S., Aleni Sestito, L., & Ragozini, G. (2014). Identity coping in the first years of university: Identity diffusion, adjustment and identity distress. *Journal of Adult Development, 21*, 159–172.

Singh, M. K. K., & Samah, N. A. (2018). Impact of smartphone: A review on positive and negative effects on students. *Asian Social Science, 14*(11), 83–89.

- Sloan, A., & Bowe, B. (2014). Phenomenology and hermeneutic phenomenology: The philosophy, the methodologies, and using hermeneutic phenomenology to investigate lecturers' experiences of curriculum design. *Quality & Quantity*, 48, 1291–1303.
- Sohn, S. Y., Krasnoff, L., Rees, P., Kalk, N. J., & Carter, B. (2021). The association between smartphone addiction and sleep: a UK cross-sectional study of young adults. *Frontiers in Psychiatry*, 12, 176.
- Spencer, P. C. (2018). Social media use and its impact on relationships and emotions. *Unpublished Master's Dissertations*. Brigham Young University. <https://Scholarsarchive.Byu.Edu/Cgi/Viewcontent.Cgi>,
- Stald, G. (2008). *Mobile identity: Youth, identity, and mobile communication media*. MacArthur Foundation Digital Media and Learning Initiative.
- Statista. (2022, *Average daily mobile usage in the United Kingdom from 2019 to 2022*. <https://www.statista.com/>. Retrieved 01/02/2024, from <https://www.statista.com/statistics/1285042/uk-daily-time-spent-mobile-usage/>
- Steele, R. G., Hall, J. A., & Christofferson, J. L. (2020). Conceptualizing digital stress in adolescents and young adults: Toward the development of an empirically based model. *Clinical Child and Family Psychology Review*, 23(1), 15–26.
- Stevic, A., Schmuck, D., Karsay, K., & Matthes, J. (2021). Are smartphones enhancing or displacing face-to-face communication with close ties? A panel study among adults. *International Journal of Communication*, 15, 27.
- Suls, J., Martin, R., & Wheeler, L. (2002). Social comparison: Why, with whom, and with what effect? *Current Directions in Psychological Science*, 11(5), 159–163.
- Sun, Y., Wang, C., & Jeyaraj, A. (2020). Enterprise social media affordances as enablers of knowledge transfer and creative performance: An empirical study. *Telematics and Informatics*, 51, 101402.
- Sznitman, S. R., Zlotnick, C., & Harel-Fisch, Y. (2016). Normalisation theory: Does it accurately describe temporal changes in adolescent drunkenness and smoking? *Drug and Alcohol Review*, 35(4), 424–432.

Tandoc Jr, E. C., Ferrucci, P., & Duffy, M. (2015a). Facebook use, envy, and depression among college students: Is facebooking depressing? *Computers in Human Behavior*, 43, 139–146.

Tandoc Jr, E. C., Ferrucci, P., & Duffy, M. (2015b). Facebook use, envy, and depression among college students: Is facebooking depressing? *Computers in Human Behavior*, 43, 139–146.

Tanhan, F., Özok, H. İ, & Tayiz, V. (2022). Fear of missing out (FoMO): A current review. *Psikiyatride Guncel Yaklasimlar*, 14(1), 74–85.

Tao, S., Wu, X., Zhang, Y., Zhang, S., Tong, S., & Tao, F. (2017). Effects of sleep quality on the association between problematic mobile phone use and mental health symptoms in Chinese college students. *International Journal of Environmental Research and Public Health*, 14(2), 185.

Tashakkori, A., Teddlie, C., & Sines, M. C. (2012). Utilizing mixed methods in psychological research. *Handbook of Psychology*, 2, 428–450.

Teger, A. I. (2013). *Too Much Invested to Quit: Pergamon General Psychology Series*. Elsevier.

Tiggemann, M., & Anderberg, I. (2020). Social media is not real: The effect of ‘Instagram vs reality’ images on women’s social comparison and body image. *New Media & Society*, 22(12), 2183–2199.

Tindall, L. (2009). No title. *JA Smith, P. Flower and M. Larkin (2009), Interpretative Phenomenological Analysis: Theory, Method and Research*. London: Sage,

Twenge, J. M. (2017). Have smartphones destroyed a generation. *The Atlantic*, 9, 2017.

Twenge, J. M., Cooper, A. B., Joiner, T. E., Duffy, M. E., & Binau, S. G. (2019). Age, period, and cohort trends in mood disorder indicators and suicide-related outcomes in a nationally representative dataset, 2005–2017. *Journal of Abnormal Psychology*, 128(3), 185.

Uhls, Y. T., Ellison, N. B., & Subrahmanyam, K. (2017). Benefits and costs of social media in adolescence. *Pediatrics*, 140(Supplement_2), S67–S70.

Vacaru, M. A., Shepherd, R. M., & Sheridan, J. (2014). New Zealand youth and their relationships with mobile phone technology. *International Journal of Mental Health and Addiction*, 12, 572–584.

- Vahedi, Z., & Saiphoo, A. (2018a). The association between smartphone use, stress, and anxiety: A meta-analytic review. *Stress and Health, 34*(3), 347–358.
- Vahedi, Z., & Saiphoo, A. (2018b). The association between smartphone use, stress, and anxiety: A meta-analytic review. *Stress and Health, 34*(3), 347–358.
- Vainio, J., Hylkilä, K., Männikkö, N., Mustonen, T., Kääriäinen, M., Konttila, J., Peltonen, A., Karhulahti, V., & Castrén, S. (2023). Perceptions of health changes and support for self-limiting social media use among young adults in Finland—A qualitative study. *Psychology of Popular Media,*
- Valkenburg, P. M., & Peter, J. (2007). Online communication and adolescent well-being: Testing the stimulation versus the displacement hypothesis. *Journal of Computer-Mediated Communication, 12*(4), 1169–1182.
- Valkenburg, P. M., van Driel, I. I., & Beyens, I. (2022). The associations of active and passive social media use with well-being: A critical scoping review. *New Media & Society, 24*(2), 530–549.
- Venkatesh, E., Al Jemal, M. Y., & Al Samani, A. S. (2019). Smart phone usage and addiction among dental students in Saudi Arabia: a cross sectional study. *International Journal of Adolescent Medicine and Health, 31*(1)
- Verduyn, P., Gugushvili, N., & Kross, E. (2022). Do social networking sites influence well-being? The extended active-passive model. *Current Directions in Psychological Science, 31*(1), 62–68.
- Verduyn, P., Gugushvili, N., Massar, K., Täht, K., & Kross, E. (2020). Social comparison on social networking sites. *Current Opinion in Psychology, 36*, 32–37.
- Verduyn, P., Ybarra, O., Résibois, M., Jonides, J., & Kross, E. (2017). Do social network sites enhance or undermine subjective well-being? A critical review. *Social Issues and Policy Review, 11*(1), 274–302.
- Vogel, E. A., Rose, J. P., Roberts, L. R., & Eckles, K. (2014). Social comparison, social media, and self-esteem. *Psychology of Popular Media Culture, 3*(4), 206.
- Wang, J., Wang, H., Gaskin, J., & Hawk, S. (2017). The mediating roles of upward social comparison and self-esteem and the moderating role of social comparison orientation in the

association between social networking site usage and subjective well-being. *Frontiers in Psychology*, 8, 771.

Wang, P., Liu, S., Zhao, M., Yang, X., Zhang, G., Chu, X., Wang, X., Zeng, P., & Lei, L. (2019). How is problematic smartphone use related to adolescent depression? A moderated mediation analysis. *Children and Youth Services Review*, 104, 104384.

Wang, W., Liu, J., Liu, Y., Wang, P., Guo, Z., Hong, D., & Jiang, S. (2023a). Peer relationship and adolescents' smartphone addiction: The mediating role of alienation and the moderating role of sex. *Current Psychology*, 42(26), 22976–22988.

Wang, W., Liu, J., Liu, Y., Wang, P., Guo, Z., Hong, D., & Jiang, S. (2023b). Peer relationship and adolescents' smartphone addiction: The mediating role of alienation and the moderating role of sex. *Current Psychology*, 42(26), 22976–22988.

Wei, D., Talib, M. B. A., & Guo, R. (2024). Academic Use of Smartphones and Academic Performance in Higher Education: A Systematic Review. *Educational Administration: Theory and Practice*, 30(1)

Whitty, M. T., & Carr, A. N. (2006a). New rules in the workplace: Applying object-relations theory to explain problem Internet and email behaviour in the workplace. *Computers in Human Behavior*, 22(2), 235–250.

Whitty, M. T., & Carr, A. N. (2006b). New rules in the workplace: Applying object-relations theory to explain problem Internet and email behaviour in the workplace. *Computers in Human Behavior*, 22(2), 235–250.

Wild, J. (1963). The Philosophy of Martin Heidegger. *The Journal of Philosophy*, 60(22), 664–677.

Williams, C., & Chellingsworth, M. (2010). *CBT: A Clinician's guide to using the five areas approach*. CRC Press.

Williams, S. N., & Dienes, K. (2022). The 'Cost of Living Crisis' and its effects on health: A qualitative study from the UK.

Willig, C. (2013). *EBOOK: introducing qualitative research in psychology*. McGraw-hill education (UK).

Willig, C., & Rogers, W. S. (2017). *The SAGE handbook of qualitative research in psychology*. Sage.

Wise, R. A., & Koob, G. F. (2014). The development and maintenance of drug addiction. *Neuropsychopharmacology*, 39(2), 254–262.

Worchel, S., & Coutant, D. (2001). It takes two to tango: Relating group identity to individual identity within the framework of group development. *Blackwell Handbook of Social Psychology: Group Processes*, , 461–481.

Yang, C. (2016). Instagram use, loneliness, and social comparison orientation: Interact and browse on social media, but don't compare. *Cyberpsychology, Behavior, and Social Networking*, 19(12), 703–708.

Yang, C., Holden, S. M., Carter, M. D., & Webb, J. J. (2018). Social media social comparison and identity distress at the college transition: A dual-path model. *Journal of Adolescence*, 69, 92–102.

Yang, J., Fu, X., Liao, X., & Li, Y. (2020). Association of problematic smartphone use with poor sleep quality, depression, and anxiety: A systematic review and meta-analysis. *Psychiatry Research*, 284, 112686.

Yang, P., Sheng, H., Yang, C., & Feng, Y. (2024). How social media promotes impulsive buying: examining the role of customer inspiration. *Industrial Management & Data Systems*, 124(2), 698–723.

Yang, S., Lin, C., Huang, Y., & Chang, J. (2018). Gender differences in the association of smartphone use with the vitality and mental health of adolescent students. *Journal of American College Health*, 66(7), 693–701.

Yang, Z., Asbury, K., & Griffiths, M. D. (2021). “A cancer in the minds of youth?” A qualitative study of problematic smartphone use among undergraduate students. *International Journal of Mental Health and Addiction*, 19, 934–946.

Yardley, L. (2000a). Dilemmas in qualitative health research. *Psychology and Health*, 15(2), 215–228.

Yardley, L. (2000b). Dilemmas in qualitative health research. *Psychology and Health*, 15(2), 215–228.

Yardley, L., & Smith, J. A. (2008). Qualitative psychology: A practical guide to research methods.

Zhitomirsky-Geffet, M., & Blau, M. (2016). Cross-generational analysis of predictive factors of addictive behavior in smartphone usage. *Computers in Human Behavior*, 64, 682–693.

Appendices

Department of Psychology
City, University of London



SMARTPHONE USE AND MENTAL WELLBEING STUDY!

Are you aged 18-25?

**Do you find using your smartphone has an effect on
your mental wellbeing (either intentionally or
otherwise)?**

If so, please take part in this research study!

We are looking for volunteers to take part in a study exploring the impact of
smartphone use on mental wellbeing.

As a participant in this study, you would be asked to: 1. Answer some brief
screening questions and a wellbeing questionnaire taking approximately 10-minutes.
2. Take part in an interview with a researcher lasting 60-80 minutes.

For more information about this study, or to volunteer for this study,
please contact: *Anthony Green, lead researcher, on REDACTED*
or

Dr Julianna Challenor, Supervisor, on *REDACTED*

This study has been reviewed by, and received ethics clearance
through the research ethics committee at City, University of London.

If you would like to complain about any aspect of the study, please contact the Secretary to the Senate Research Ethics Committee on REDACTED or via email: REDACTED

City, University of London is the data controller for the personal data collected for this research project. If you have any data protection concerns about this research project, please contact City's Information Compliance Team at REDACTED

Appendix 2: Participant Information Sheet

May 2022

Ethics application: ETH2122-1598



An Exploration into the Impact of Smartphone Use on the Mental Wellbeing of Young Adults

Researcher: Anthony Green, Trainee Counselling Psychologist

Invitation

We would like to invite you to take part in a research study. Before you decide whether you would like to take part it is important that you understand why the research is being done and what it would involve for you. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. You will be given a copy of this information sheet to keep.

What is the purpose of the study?

Nearly 100% of young adults (18-25year-old) own a smartphone in the UK and on average, spend more than four hours every day using them. Smartphone use includes everything you can do on your smartphones e.g., YouTube, news, shopping, social media, messaging, phone calls etc. Since smartphone use has become so prevalent in this age group, researchers have been looking into what affect smartphones may be having on young people's mental wellbeing. Research has produced a variety of findings, some suggesting smartphones may be having a positive impact on our mental health, whilst others suggest it may be more detrimental. This is perhaps not surprising as everyone is different and uses their smartphones in different ways. However, less research has focused on more in-depth conversations with young people, looking into what they think and feel about how smartphone use impacts their wellbeing, which is the aim of this research and may help to explain some of the previous studies' results. Detailed personal accounts of smartphone use and wellbeing are largely missing from the current research and may provide important insights into the complex relationship between smartphone use and mental wellbeing in young people.

Why have I been invited to take part?

You have been invited to take part as you've expressed an interest in this study, are aged 18-25 and feel your smartphone use is currently impacting your wellbeing in some way. If you are currently experiencing a lot of psychological distress this may not be the best time for you to take part as some questions relating to smartphone use and wellbeing could potentially be distressing. To protect your wellbeing, we will ask you to complete a short wellbeing questionnaire and some screening questions to assess if it's the right time for you to be taking part and offer you any support if desired.

Do I have to take part?

Participation in the project is voluntary, and you can choose not to participate in part or all of the project. You can withdraw at any stage of the project without being penalised or disadvantaged in any way. It is up to you to decide whether or not to take part. If you do decide to take part you will be asked to sign two consent forms, the first asking for your consent to complete the mental wellbeing questionnaire and screening questions and the second, to take part in the main research interview. If you decide to take part, you are still free to withdraw at any time and without giving a reason. You will be able to withdraw your data from the study at any point up to one month after the interview.

What will happen if I take part?

1. You will need to read this form and will be given your own copy. You will be sent a consent to screening form which outlines the screening questions and wellbeing questionnaire.
2. If you consent to screening, we will arrange a screening telephone call which will last approximately 10 minutes. We will go through some brief screening questions and two mental wellbeing questionnaires called the GAD7 and PHQ8 to assess your wellbeing. If there is a gap of over 3 months between the questionnaires and the interview, you will be asked to complete the questionnaire again prior to interview. You will also be able to ask any questions you have about the study at this point.
3. If you are eligible for the research, you will be sent the second consent form which outlines the main study and will be asked to provide your email and phone number on a contact details form. You will also be asked to provide your ethnicity, gender, age, and employment/education on a participant demographics form (you can leave answers blank if you do not wish to answer). You will need to sign and return these forms within 10 days. We will also arrange an interview date at your best convenience.
4. The interview will take place over Zoom and will be 'semi-structured', meaning there are some set questions you will be asked but you will also be encouraged to talk freely about what feels important and meaningful to you. The interview questions will relate to smartphone use and wellbeing. The interview will last approximately 60-80 minutes, including break time which can be taken as and when needed. The interview audio will be recoded and later transcribed and studied. You can see the interview questions in the attached 'Interview schedule'. You are free to stop the interview at any point and should let the researcher know if you feel distressed.
5. You will be able to withdraw your data up to one month after the interview and can also ask for a copy of the transcript (by ticking the appropriate box in the study consent form) to read over and make amendments to if you feel necessary (this is optional). You will be given a week to make amendments and will receive the transcript within a month after the interview.

6. The research's estimated completion date is September 2023 (approximately). You can ask for a finished copy of the research or a briefer summary of findings by ticking the appropriate box on the study consent form.

What do I have to do if I take part?

In the interview we simply want to hear your thoughts, feelings, understanding, and experiences relating to smartphone use and wellbeing. There are no right or wrong answers, you are free to take the interview in any direction you wish.

What are the possible disadvantages and risks of taking part?

It is possible when discussing smartphone use and wellbeing, something may arise in the interview that you find distressing. If this happens, we can stop the interview or take a break or continue if you wish. We will also provide mental health support resources/service information in the 'debrief form' you will receive after interview.

What are the possible benefits of taking part?

Reflecting upon and talking through the impact of smartphone use on your wellbeing may help you to become more aware of the impact your smartphone is having on you. It may help you to identify what aspects of your smartphone use may be more or less beneficial to your wellbeing, potentially promoting more healthy smartphone use. The findings of this research may also be shared amongst other researchers and psychologists, providing education on, and raising awareness of, how young people experience the impact of smartphone use on their wellbeing. Finally, this study will add to a growing body of research on smartphones and mental wellbeing, making a unique contribution by allowing the thoughts, feelings and experiences of young people to be heard. This information could potentially inform future research undertaken in this area.

What should I do if I want to take part?

Please contact Anthony Green on REDACTED expressing a desire to take part.

Data privacy statement

City, University of London is the sponsor and the data controller of this study based in the United Kingdom. This means that we are responsible for looking after your information and using it properly. The legal basis under which your data will be processed is City's public task.

Your right to access, change or move your information are limited, as we need to manage your information in a specific way in order for the research to be reliable and accurate. To safeguard your rights, we will use the minimum personal-identifiable information possible (for further information please see <https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/lawful-basis-for-processing/public-task/>).

City will use your name and contact details to contact you about the research study as necessary. If you wish to receive the results of the study, your contact details will also be kept for this purpose. The only people at City who will have access to your identifiable information

will be Anthony Green. City will keep identifiable information about you from this study for 10 years after the study has finished.

You can find out more about how City handles data by visiting <https://www.city.ac.uk/about/governance/legal>. If you are concerned about how we have processed your personal data, you can contact the Information Commissioner's Office (IOC) <https://ico.org.uk/>.

Will my taking part in the study be kept confidential?

Your information and data collected will be strictly confidential. The interview will be recorded in a safe and private way in accordance with City university guidelines, the recording will be encrypted. The interview transcripts will be anonymized meaning that names, places, or quotes containing any other form of identifiable information will be redacted or changed. Your transcript data will be kept separately to your contact information. Anthony Green (lead researcher) and Dr Julianna Challenor (research supervisor) will be the only people who will have access to your information and data. All data will be kept securely using password protected computer files on a password protected computer, passwords are not shared with anyone, only Anthony Green has access to the passwords. Data will not be shared with anyone during the research process and will be permanently destroyed by City University after 10 years in accordance with university policy.

What will happen to the results?

The anonymised results will be used for Anthony Green's Counselling Psychology Doctoral thesis, completion of the thesis is requirement of the Counselling Psychology Doctorate course at City university. The results may also be published in an academic journal and would remain anonymous. Participants of this study can also receive a copy of the completed research or a summary of findings by requesting this on the informed consent form for the research study. Doing this will mean the lead researcher will keep a copy of your email address until the study is completed, if you do not want to receive the study's findings your contact information will be deleted one month after interview.

Who has reviewed the study?

This study has been approved by City, University of London, Department of Psychology Research Ethics Committee.

What if there is a problem?

If you have any problems, concerns or questions about this study, you should ask to speak to a member of the research team. If you remain unhappy and wish to complain formally, you can do this through City's complaints procedure. To complain about the study, you need to phone REDACTED. You can then ask to speak to the Secretary to Senate Research Ethics Committee and inform them that the name of the project is '**An Exploration into the Impact of Smartphone Use on the Mental Wellbeing of Young Adults**'

You can also write to the Secretary at:

REDACTED

Research Integrity Manager

City, University of London, Northampton Square

London, EC1V 0HB

Email: REDACTED

Insurance

City University London holds insurance policies which apply to this study, subject to the terms and conditions of the policy. If you feel you have been harmed or injured by taking part in this study you may be eligible to claim compensation. This does not affect your legal rights to seek compensation. If you are harmed due to someone's negligence, then you may have grounds for legal action.

Further information and contact details

Researcher: Anthony Green, Email: REDACTED

Supervisor: Dr Julianna Challenor, Email: REDACTED

Thank you for taking the time to read this information sheet.

Appendix 3: Informed consent form 1: Screening call

Researcher: Anthony Green

May 2022

Ethics application: ETH2122-1598



An Exploration into the Impact of Smartphone Use on the Mental Wellbeing of Young Adults

Please
tick or
initial box

1	I confirm that I have read and understood the participant information for the above study. I have had the opportunity to consider the information and ask questions which have been answered satisfactorily.	
2.	I understand that my participation is voluntary and that I am free to withdraw without giving a reason without being penalised or disadvantaged.	
3.	I agree to answering questions relating to my mental wellbeing from two questionnaire (the GAD7 and PHQ8) which may be of a sensitive nature. If I am eligible to participate in the main research study, I understand these questionnaires will need to be completed again if there is a wait of over three months between the time of the screening call and the interview.	
4.	I agree to City recording and processing this information about me. I understand that this information will be used only for the purpose(s) explained in the participant information and my consent is conditional on City complying with its duties and obligations under the General Data Protection Regulation (GDPR).	
5.	I understand that the screening call is used to assess eligibility for participation in this research study.	
6.	I agree to take part in the screening call and understand that if I'm eligible to participate I will be invited to take part in the research study and will be asked to sign a second consent form.	

Name of Participant

Signature

Date

Name of Researcher

Signature

Date

When completed, 1 copy for participant; 1 copy for researcher file.

Appendix 4: Screening call guide/inclusion criteria

Screening guide

1. Introduce screening call, give participants a chance to ask questions
2. Ask participants to confirm age is between 18-25 years, confirm they own their own smartphone, and confirm they feel their smartphone is currently affecting their wellbeing.
3. Introduce and administer PHQ8 and GAD7 to screen for 'moderate-severe' and 'severe' psychological distress (scores above 14 and 10 respectively).
- 4 a. For eligible participants, ask if they would be willing to take part in the next stage of research i.e., interview process, recording of interview and 2nd informed consent form. If willing, explain the next part of the research will be sent to them. Go through contact details form with participant in order to arrange next steps.
- 4 b. If participants are not eligible, sensitively explain they will not be able to take part in the research, check they are okay and offer support if needed, offer support resources/services from the debrief sheet if needed.

Appendix 5: PHQ-9 and GAD-7. *N.B. PHQ-9 question 9 will be removed as an ethical consideration.*

PHQ-9

Over the last 2 weeks, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly every day
1 Little interest or pleasure in doing things	0	1	2	3
2 Feeling down, depressed, or hopeless	0	1	2	3
3 Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4 Feeling tired or having little energy	0	1	2	3
5 Poor appetite or overeating	0	1	2	3
6 Feeling bad about yourself – or that you are a failure or have let yourself or your family down	0	1	2	3
7 Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8 Moving or speaking so slowly that other people could have noticed? <u>Or the opposite</u> : being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9 Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

PHQ9 total score

GAD-7

Over the last 2 weeks, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly every day
1 Feeling nervous, anxious or on edge	0	1	2	3
2 Not being able to stop or control worrying	0	1	2	3
3 Worrying too much about different things	0	1	2	3
4 Trouble relaxing	0	1	2	3
5 Being so restless that it is hard to sit still	0	1	2	3
6 Becoming easily annoyed or irritable	0	1	2	3
7 Feeling afraid as if something awful might happen	0	1	2	3

GAD7 total score

PTO

Appendix 6: Informed consent form 2: Main research project

Researcher: Anthony Green

May 2022

Ethics application: ETH2122-1598



An Exploration into the Impact of Smartphone Use on the Mental Wellbeing of Young Adults

Please
tick or
initial box

1	I confirm that I have read and understood the participant information dated for the above study. I have had the opportunity to consider the information and ask questions which have been answered satisfactorily.	
2.	I understand that my participation is voluntary and that I am free to withdraw without giving a reason without being penalised or disadvantaged.	
3.	I understand that I will be able to withdraw my data up to 1 month after the interview.	
4.	I agree to the interview being audio OR video recorded.	
6.	I agree to City recording and processing this information about me. I understand that this information will be used only for the purpose(s) explained in the participant information and my consent is conditional on City complying with its duties and obligations under the General Data Protection Regulation (GDPR).	
7.	I understand that my anonymous data will be made accessible to the public if this research is published in an academic journal	
8.	I understand that direct quotes may be used in the research from my interview.	
9.	OPTIONAL: I would like to be receive a copy of my interview transcript to verify and understand that my contact details will be retained for this purpose.	
10	OPTIONAL: I would like to be receive a copy study once it has been completed or a briefer summary of findings and understand that my contact details will be retained for this purpose.	
11.	I agree to take part in the above study.	

Name of Participant

Signature

Date

Name of Researcher

Signature

Date

When completed, 1 copy for participant; 1 copy for researcher file.

Appendix 7: Participant Demographic Information

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Ethics application: ETH2122-1598



An Exploration into the Impact of Smartphone Use on the Mental Wellbeing of Young Adults

If you do not feel comfortable answering any of the following questions, please leave them blank.

1. How would you describe your gender?

2. How old are you?

3. Are you currently employed/studying?

4. Do you currently reside in the UK?

Thank you for completing this form. Please return the form to REDACTED. Please feel free to contact this address if you have any further questions.

Researcher: Anthony Green

Research supervisor: Julianna Challenor, REDACTED

Appendix 8: Pilot Interview/Interview Guide

Firstly, I will introduce the participant to interview process, explain they can take breaks whenever needed and that I will encourage this regularly, explain what they can do if they feel distressed, explain procedure if Zoom fails, encourage them to speak freely and openly, ensure they are comfortable and in a private setting.

1. What drew towards taking part in this research?

2. Can you tell me what it's like to have a smartphone?

Prompts: How do you feel about them? What's your opinion of them? What do you use it for? Why do you have one?

3. How does your smartphone use impact your wellbeing?

Prompts: What is that like for you? How does it make you feel? What aspects of use seem to impact your wellbeing? Can you tell me more about that?

4. Can you describe a time you noticed your smartphone effecting your mood?

Prompts: What were you thinking? How were you feeling? Can you tell me a bit more about that? What was that like for you?

5. How does using a smartphone make you feel about yourself?

Prompts: Has it changed how you think/feel about yourself? Can you tell me more about that?

6. How does your smartphone use impact your relationships, if at all?

Prompts: Can you tell me a bit more about that? What is that like for you? How does that make you feel? How does it affect communication in relationships?

7. How would describe the culture of smartphone use amongst young people?

Prompts: Can you describe any particular customs? What are the social rules, etiquette, or expectations, if any? How does the culture impact your wellbeing, if at all?

8. How would it feel if you could no longer use your smartphone?

Prompts: In what way would that matter? How would that make you feel? What impact would this have on you?

9. Is there anything else you would like to tell me today?

Prompts: Any thoughts, feelings, reflections?

Additional pilot questions post interview

1. How did you find that experience?
2. How did you find the questions? Is there anything you would change, or think could be improved upon?
3. Did you feel able to speak to freely about what you wanted to discuss?

If the pilot interview is able to produce rich, detailed personal accounts which pertain to the research aims and there are no suggestions from the participant, these questions will be used for the research. If there are issues with the interview guide, this will be discussed with my supervisor and questions may need to be altered.

Appendix 9: Participant Contact Details

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An Exploration into the Impact of Smartphone Use on the Mental Wellbeing of Young Adults

In order to conduct this research, we will need to contact you via email and telephone. We may need to use your phone number in case there are technical difficulties with the Zoom interview, or to arrange interview dates if you would prefer to do this over the phone. We need your email to send you a copy of the transcript after the interview and a copy of the completed research once the study has been completed, if you have opted in for this. Your contact details will be permanently deleted after we have sent you a copy of the research. If you have not opted in to receive the transcript or a copy of the research your contact details will be permanently deleted one month after interview.

Name: _____

Mobile phone number: _____

Email address: _____

Please return this form to REDACTED. Please feel free to use this address to ask any further questions you have about the research. Thank you.

Researcher: Anthony Green

Research supervisor: Julianna Challenor, REDACTED

Appendix 10: DEBRIEF INFORMATION

An Exploration into the Impact of Smartphone Use on the Mental Wellbeing of Young Adults

Thank you for taking part in this study. We greatly appreciate the time and effort you put into this process. Please feel free to contact the researcher on Anthony.green@city.ac.uk if you have any further questions regarding the study.

If the research process has raised concerns for you, or you are feeling emotionally distressed and feel like you need support, we have provided some guidance and resources relating to how to get help.

If you feel you're experiencing psychological distress you would like support with, please book an appointment with your GP as soon as possible, they will be able to offer an assessment and refer you onto support services if necessary.

If you want further information on how to support yourself in times of psychological distress, the following links may be helpful. They provide self-help resources and information on how you access professional help for free.

<https://www.nhs.uk/nhs-services/mental-health-services/>

<https://www.mind.org.uk/>

<https://www.headspace.com/>

If you feel you need urgent help, please request an emergency appointment with your GP. You can also call the Samaritans on 116 123 or go to your local A&E hospital department and ask for psychological support.

If you are finding it difficult to control your smartphone use and would like to more information about ways to reduce your use, please see:
<https://www.helpguide.org/articles/addictions/smartphone-addiction.htm>

If you opted in to receive a copy of the completed study, we will email this to you as soon as the study is finished. We hope you enjoyed participating in this study. If you have any other questions, please do not hesitate to contact us on:

Lead researcher, REDACTED

Research supervisor, REDACTED

Ethics approval code: **ETH2122-1598**

Appendix 11: Exploratory noting and experiential statement examples. (AG is researcher)

Experiential Statements	Exploratory Notes
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The amount of messages she receives is too much to handle, causing dread & overwhelm. But she can't stop using it - has to reply / needs it. She is resentful of her dependency, attempts to get space from her phone but struggles. The pressure to respond to others and the uses of her phone trap her in some sense - it sounds very difficult to not use her phone despite negative feelings.	powerful emotional language She seems frightened of her phone Has to reply - no choice. Clearly has some conflicting feelings, enjoys conversations but doesn't like pressure unhappy with state of dependence. Needs her phone. perpetrated by her phone Constant communication is draining for her.

Appendix 12: Example of Personal Experiential Statement table

Eva: Table of Personal Experiential Themes	
PET 1: SMARTPHONE USE AND MENTAL-WELLBEING HAS A COMPLEX AND MULTIFACETED RELATIONSHIP	
Sub-theme 1: You Can't Separate The Good From The Bad - Trapped Experiential Statement Example: Trapped by creating a virtual world that she doesn't want to lose because she values some aspects, even though some aspects are damaging to her. Related Quote: <i>"you kind of become trapped in the sense that you'll lose this virtual world you have created for yourself, which again is both good and bad"</i>	
Sub-theme 2: Awareness as a Protective Factor Experiential Statement Example: Awareness of the negative sides of social media is important to negate against them. Related Quote: <i>"I think I try and negate against some of the kind of worst aspects of it, sometimes successfully, sometimes less successfully but I try and be aware"</i>	
PET 2: THE IMPACT OF VISUAL MEDIA ON MENTAL-WELLBEING	
Sub-theme 1: A Constructed Reality Without Context Experiential Statement Example: Participant thinks it's highly unlikely you'll guess context (surrounding a photo) correctly. In this case she was then left feeling bad about herself for overreacting. There's a sense of shame here. Related Quote: <i>"I felt kind of stupid when I found out, because actually it all made a lot of sense, and I felt bad for my reaction."</i>	
Subtheme 2: FOMO (Fear of Missing Out) Experiential Statement Example: Reduced her social media use because it's not worth the hurt it causes - specifically links this decision to seeing things visually. (Speaks intensely here, sounds emotional). Related Quote: <i>"seeing things visually that makes it almost hurt more and I've experienced that and I understand it, which is why I have ended up not using my social media, so much for that purpose"</i>	
PET 3: SMARTPHONES CREATE PRESSURE	
Sub-theme 1: Social Expectation Experiential statement example: She places deep importance on friendships that understand the pressure she experiences on SM and allow more realistic expectations. Related quote: <i>"if you don't message for months like that's all right, there's no pressure to and try to kind of maintain a more normal relationship not thinking of social media and those are kind of some of my favourite relationships"</i>	
Sub-theme 2: Information Overload Experiential statement example: The sheer quantity of information consumed on SM is cognitively demanding, even if she is not fully aware at the time, taking in information and subsequent reactions is challenging for her. Related quote: <i>"because without realizing, I think you're constantly having to process everything that you see, you react to everything you see in some way or another."</i>	
PET 4: EXACERBATING INSECURITIES	
Sub-theme 1: Exploiting Human Psychology	

Experiential statement example: Social media exploits our psychological vulnerabilities and deep irrational feelings, seemingly she feels these feelings do not make sense rationally but are still experienced. Related quote: “it (SM) plays on kind of irrational feelings, and that's why it's quite hard to get yourself out with that headspace”
PET 5: DEPENDENT ON/ADDICTED TO MY SMARTPHONE Sub-theme 1: A Lack of Control Experiential statement example: This indicates a lack of control in her use, a symptom of addiction Related quote: “I think I do spend a lot of time on my phone more than I would like” Sub-theme 2: Reliant on Smartphones to Function Experiential statement example: Institutions using SM to coordinate people forces people involved with those institutions to use it, and makes functioning without very difficult. Related quote: “I think, especially in a university sense, they use it because it's actually a very effective way of coordinating large numbers of people”

Table 1.0. Showing Eva (pseudonym) list of PETS and subthemes derived from her interview transcript and experiential statements.

Appendix 13: Table of Group Experiential Themes, related experiential statements and participant quotations

Pseudonym	Experiential Statement and Quote	Page
GET 1: Smartphones are complex: You can't separate the good from the bad		
1a: Trapped by your smartphone		
Talia	Feels TikTok is manipulating her to stay on the app by hiding the time. <i>"if you can see the time, I'm very conscious well maybe not very, but a bit more conscious of like how much time you're spending on it"</i>	4
Eva	The positive and negative of social media are intrinsically linked creating inner conflict. <i>"it's not like there are separate parts that are good and bad, it's as if each element is both. And again that's how you're so trapped and it's very hard"</i>	14
Rosa	Dual experience of good and bad - freedom to contact people/get information but also trapped by pressure and social expectation to respond. <i>"contact with with people you're close with, but it also feels quite like a pressure because people are constantly messaging you, you're always being expected to reply to them, so I would say I feel free but also somehow trapped by it".</i>	1
Rosa	'Double edged sword' – the metaphor implies that the good and bad are part of the same thing – inseparable. Likes to be connected and but doesn't like the constant social pressure/expectations. <i>"it's kind of like a sort of double edge sword, I like to talk to people but I don't want them to constantly expect me to talk to them sort of situation."</i>	3
Brian	Smartphone use has good and bad qualities which are difficult to separate, illustrated by the word 'blur', which also evokes images of confusion – the confusion of managing wellbeing when good and bad are in the same place? <i>"my phone is like a distraction even when it's not there, even when I try and do things to like remove it away.... it's also there are positive things like work and connecting with friends and all these. So kind of it blurs, like blurs, it's like, makes it slightly more ambiguous."</i>	2,3
Hannah	A 'rut' implies something that is very difficult to get out of. Finds it frustrating she relies on it so much, it seems there's an element of use that's beyond her control and this is unsettling for her. <i>"I am a little bit more kind of in a bit of a rut with like, smartphone use, like I said about like waking up, it's the first thing I'm doing, like it frustrates me that I do rely on it so much."</i>	12
Riana	The good and bad are two sides of the same coin - an important gift of community seamlessly transitions into anxiety. <i>"I've been through this, I should follow, I think what I was saying (about getting) that sense of community right? So like, I should follow this because I want to support it and I relate to it but I soon started to realise that instead of having a positive, it was having a negative impact on me."</i>	16
1b: Addiction or dependency?		
Talia	A sense that she's powerless to do anything about the rapid change in technology. Her laugh indicates how futile it would be to fight the integration of technology into our lives for better or worse. <i>"unfortunately</i>	22

	<i>the way technology is (laughs) and how much it advanced, it's kind of hard to, I guess to step back, because it's there like, whether you like it or not"</i>	
Eva	Social media is described in a way that makes it sound like it has a mind of its own, insidious, cunning. Able to draw you into addiction. <i>"social media is so multi-faceted it can kind of tap into parts of every individual like I think is quite an insane phenomenon that there are so many millions of unique people and but this addiction is so widespread, and I think it's because no matter who you are, and what your personality is, it, social media always kind of finds a way of drawing you in"</i>	13
Rosa	Truly integrated with the technology, grown up with it? As if it's part of her. <i>"I honestly barely remember a time when I didn't have one (a smartphone)."</i>	1
Rosa	The words 'completely lost' imply a great level of dependence upon her smartphone, but she is resentful of this, she makes futile attempts to distance herself from it. <i>"I feel completely lost when I don't have my phone on me, like I always have it on me, but when I'm at home I try to separate myself from it but then it all piles up more and I have to respond at some point so I feel dependent on it but very begrudgingly dependent"</i>	2
Brian	Addiction symptomology – inability to stop when he knows it's bad for him, a habitual impulse creating feelings of anxiety and powerlessness. <i>"that's when you start getting anxious as if like, you're struggling with work, that you feel yourself constantly doing this thing that you know is bad for you but you can't really, it's like almost like an impulse. Like, you can't really stop it. It's your phone's like there."</i>	12
Hannah	Use of the word 'limb' symbolises how attached she's become to her phone - it's become a part of her. Without it she no longer feels whole. <i>"Kind of like a limb, isn't it? You have it on you all the time"... "You lose it. And you're like, Oh, my God, like, I'm limbless. I'm alone."</i>	6,7
Riana	Smartphone use is becoming a requirement for functioning, forced into dependency – e.g., google maps becoming essential for navigation - figuratively and literally lost without a smartphone. <i>"Really hard! Yes, it's really difficult. I think I am quite dependent on it, I would feel quite lost. I would feel, It just gives me this feeling. Everything's on the smartphone today, I mean I use Google maps for everything."</i>	26

GET 2: It's the seeing it! Comparison to Visual Media, Insecurity Exacerbation and Identity Distress		
Talia	SM has the power to amplify mood, it can exacerbate insecurities and negative views of self. <i>"if I'm already in a low mood, or I don't know, it's just something like that, it definitely changes, I think changes it" ... "I think it could make me feel lower"</i>	16,17
Eva	SM is so vast that whatever your insecurity is there will be related content, if you click on it, you will be fed more of the same, often in an edited idealised format exacerbating the issue. <i>"I think one of the worst things, is every person has things that they are insecure about, and I think social media exacerbates anyone's insecurities, whether it's in security about your appearance your body, your money or class your friends your education whatever"</i>	5

Rosa	SM algorithm creates positive feedback loops, perpetuating pre-existing obsessions and insecurities, almost like worrying or ruminating through an online medium, she sounds like she has little control here - 'exploited'. <i>"when I'm feeling conscious about my body, I'll look at more stuff like that and then it will give me more like that. So I think it just perpetuates the way that you're already feeling and it exploits your current obsession is in your current insecurities"</i>	12
Brian	When in a vulnerable state, social media 'massively exacerbated' his loneliness – almost preying upon his natural emotional vulnerability. <i>"I think actually, it massively exacerbated my loneliness, it made me feel more lonely seeing other people together."</i>	15
Hannah	Feeling her body needed to look a certain way in order to feel attractive is taking her further away from her true self, judging herself, feeling not enough. <i>"I'm thinking, oh, you know, just like, from a body point of view, like, oh do men find that attractive? Or, you know, does my body need to be a certain way that is more attractive, or you can become insecure, definitely."</i>	17
Rianna	SM has made this worse through social comparison seeing people with better skin makes her feel envious and bad about herself although what she is comparing herself to is likely edited or idealised this doesn't affect the effect on mood and self-image. <i>"I've been suffering with acne because of kind of, like, like hormonal stuff and things like that. But it's kind of been in the last year. And I think for me, that's quite a critical thing that is impacted by social media"</i>	6

GET 3: Revolutionising communication and Relationships		
Subtheme 3a. Unrealistic social expectations		
Eva	The new capability to constantly communication has led to the development of new social expectations to be available constantly – not meeting these peer expectations creates a permanent background anxiety. <i>"The thing that I personally find hard and anxiety provoking is the expectation of constant communication, because it's so easy to do that. People have very high expectations and it's not something I Feel like I can always fulfil."</i>	7
Rosa	Dreads spending time on her phone, leaves it in the corner of room. Sounds like a child scared of a monster in their cupboard, the pressure to reply is scary to her. <i>"I sort of dread it, like I sort of leave it in the corner of my room on silent not really wanting to look at it because like when messages pile up it sort of overwhelms me"</i>	2
Hannah	Your phone is considered an extension of yourself now – you will always have it and therefore expected to reply instantly (emphasised by the metaphor) – this comes at cost, increased anxiety and feeling overwhelmed. <i>"the feeling of being overwhelmed because there is an expectation there is like the idea that you are just going to be there at the drop of a hat because your phone is literally like a limb"</i>	25
Rianna	Identity is shaped by social pressure on SM, likes and dislikes, what's cool, this may not be related to what you actually feel or think. SM may take you further away from who you really are.	23

	<i>"I think based on what you're receiving from people, you will act a certain way. But that doesn't mean yeah, that's the true you. Just it's just sad"</i>	
3b: Tension in relationships		
Talia	'read' function of messages has affected friendships, Misinterpretation of digital information without context has strained her relationships. <i>"I know in one incident, someone actually was like, Oh, well, I saw you read it. And I was like, oh, no, I hadn't I been looking at different message. But because of that the person could interpret that"</i>	22
Eva	Felt very upset with a friend due to misinterpreting information on social media, she got upset and angry with the friend after jumping to conclusions – there is a sense she was embarrassed and ashamed by her reaction. <i>"I I felt kind of stupid when I found out, because actually it all made a lot of sense, and I felt bad for my reaction."</i>	17
Rosa	Tension developed in relationships by phones taking people out of the present moment whilst socialising, she's angered by the irony that people will devalue a social situation to post about how much of a good time they're having on social media. <i>"they'll spend like literally the next hour in complete silence on their phone like picking the perfect caption and cover photo and posting it and it really like kills the mood and I can be quite like snappy when that happens and that's like a bad effect it's had on relationships"</i>	20
Brian	Made ending a relationship much harder, unable to move on or get closure he needed – An already challenging situation made harder. <i>"Yeah, that so it made a lot more difficult, like it exacerbated the situation I was in, the situation would have been tough. But I think I would have been able to, like, move on and like immerse myself in my new life much more easily, and easier if I didn't have like a constant reminder"</i>	15
Hannah	There is an internal conflict here. She feels the need to make excuses for her lack of responding to others, afraid to hurt their feelings and feel guilt. Unable to give the real reason for lack of responsiveness - she finds messaging overwhelming and anxiety provoking. Why is this not a social accepted answer for her? <i>"But like, you can't, can't think like that and even if you excuse yourself, you're like, oh, sorry, I've been so busy. Even if you haven't, you just feel the need to like apologise because they know that you've seen the messages. Yeah. It's like a constant cycle of like, excusing yourself for like, not replying, I think. I find that exhausting."</i>	15

Get 4: Connection, Freedom and Learning: The Positives of Smartphone Use		
Subtheme 4a: Connection with family and friends		
Eva	SM can help to maintain relationships but is also 'creational', indicating new ways of relating, a growthful experience, positive to wellbeing. <i>"I think is been very kind of creational in a lot of my relationships And allowed me to maintain relationships I wouldn't have been able to"</i>	26
Rosa	The sole reason she stayed in contact with her oldest friend who moved away was social media (Snapchat). Enables constant connection over distance and visual media enhances this connection. <i>"I would not of kept in contact with her whatsoever without social media"</i>	10

Brian	A sense his smartphone allows tremendous freedom due to remaining connected to loved ones whilst being physically very far apart. Makes amazing life changing opportunities such as living in other countries far more viable and realistic. <i>“all my family is in Canada, Smartphones definitely helped me stay in touch with my family more like we’re all super like, we’re super close as a family. We chat all the time. Like, helps me stay connected with my, like I’m in Oxford, almost like, most of my friends are in London. So we’ve got group chats, and like, I think it enhances relationships”</i>	22
Hannah	Smartphone use has tremendous functional and emotional value to her despite her frustrations and reservations. - She would be “lost and sad without it”. Helps her stay connected to things she values and loves. <i>But when you boil it down, like I get to speak to my mom every day having moved to London and moved out of home, She’s able to send me pictures of Mitzi, my dog, you know, like, obviously without it, I would be lost and I would be sad. So I do have to like, think Well, I’m obviously happy that I have it”</i>	12
Riana	Feels privileged to have that amount of connection with loved ones. It has enabled an immense positive life change of moving and studying abroad. <i>“I just think being able to see (though facetime) them (family abroad) every day is a privilege and Smartphones gives that so I think if you took that away, I don’t know how I would communicate with them. I don’t think I’d be able to go this long being so far away. So yeah, I think, yeah, it would again”</i>	3
Subtheme 4b: My smartphone is my teacher		
Talia	Recognises her phone has enabled her to discover new things, pursue and enhance her interests and is a source of joy in her life. <i>“there are positive things, when like, it has shown me videos of things that I wouldn’t have known about maybe exhibitions or stuff that I’ve managed to go to with friends And it’s like, obviously, there’s gonna be a positive impact, because it’s like, you know, giving me a joyful experience”</i>	3
Brian	Smartphones make interacting with the world easier and more efficient; they are capable of saving you time as well as taking it away. <i>“Yeah. Like without mobile banking, and without the ability to buy train tickets on your phone right then and there or without the ability to use the NHS app”... “it just makes it so much easier to like, operate in this in the world”</i>	27
Rosa	Her love of books was kindled and developed though SM, this is a new activity she now draws tremendous value from, expanding her horizons <i>“I mean there are interests that I have that I don’t think I would have developed without social media, like there are books and stuff I love to read but I wasn’t that into reading when I was younger”</i>	13

GET 5: What You Don’t Know Really Does Hurt You

5a: Developing protective awareness: Learning the hard way

Talia	Increased awareness is very necessary for young people and smartphones due to their stage of development and impressionability. Wishing she had more guidance at an earlier age. <i>“If I had that (awareness) more in my teenage years that like to, you know, develop into how I interpret situations on the phone or not on the phone, like, I think, you know, it’s definitely, it’s definitely something to be looked at for more early years”</i>	31
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Eva	She is learning on her own through trial and error how to negate against the harms of social media. She ‘tries’ to be aware implying that awareness is not given – discerning what type of SM use impacts wellbeing is complicated. <i>“I mean I think I try and negate against some of the kind of worst aspects of it, sometimes successfully, sometimes less successfully But I try and be aware”</i>	
Rosa	She’s now gained awareness of damaging pages, acting as a protective function. However, this awareness was gained through painful trial and error and suffering. <i>“I sort of red flag it in my brain and I’m instantly aware of it, like if there’s a dieting video then I immediately just click not interested, because I’m sort of hyper aware of not getting back into that sort of echo chamber of social media now”</i>	20
Brian	“Creeps up more and more” suggests the nature of smartphone use is insidious, it is only through conscious reflection that he’s able to recognise how much he’s on his phone – awareness is not a given. <i>“I think it kind of creeps up more and more. Yeah. So yeah, yeah, I didn't like I didn't I didn't Yeah, I still like I, It's not like I'm on my phone 24/7. But yeah, like, when I stop and think about it, I'm like, actually, I do use it quite a lot.”</i>	5
Hannah	Awareness of the mental health issues seems to be essential in escaping them and it’s not a given. In this case it was gained through talking to friends, reflection – it must be built. <i>“I didn't go too far on that (overthinking due to SM comparisons) because it could have spiralled, definitely, but think about it, I think yeah, just talking about it helps, and with my friends and stuff being like, wait, are you feeling like this too? like, Hold on, why are we why are we doing this?”</i>	
Hannah	Describes the process of building awareness of mental-health implications on SM as ‘learning the hard way’ She imagines how much easier things would be if she’d known beforehand and the implications on her wellbeing. <i>“I've grown up with social media growing influence culture, and I've had to kind of learn the hard way. Whereas going into that, knowing that it exists, and knowing what the problems are and how you can maybe positively like change these things for yourself and for the better of your wellbeing”</i>	28
Rianna	If she’s not actively thinking about the link between awareness and mood/self-view then she can feel bad from using SM without realising - not easy to spot, requires active reflection and engagement to recognise effect of subtle automatic behaviour. <i>“the way I feel about myself comes from a place of awareness. So if I'm very, if I'm not thinking about the link between the two, I could just be in a really bad mood and be feeling bad about myself and not even realise it's coming from social media or, or my smartphone”</i>	20
5b: Awareness alone is not enough		
Eva	The awareness alone is not enough to negate negative consequences of social media, you can know something is damaging for you yet continue to engage in the behaviour, resembling an addiction to something harmful. <i>“I think what the hardest part is It's not a lack of awareness of that. I think it's kind of deeper and it plays on kind of irrational feelings, and that's why it's quite hard to get yourself out of that headspace”</i>	6

Rosa	Even having an awareness that SM photos are not representative of reality doesn't protect her from comparing herself to unrealistic ideals – it's easy to forget and automatically compare, creating an emotional response. <i>"it's like subconsciously I know it that's only the best part (of other's live on SM), but sometimes that's hard to get through because you can forget that."</i>	82
Brian	Struggles to believe how long he's spent on his phone - possible sense of denial. Highlights how easily denial can impact his sense of awareness and how easily smartphone uses evades awareness initially. <i>"Sometimes I don't believe that. Sometimes. I'm like, I haven't been on my phone for six hours a day on average, like, there's no way then I'm like, shit, maybe like I have"</i>	6
Rianna	Having an awareness isn't always enough to protect you from negative effects of SM, you get lured in, almost as if it's exploiting human psychology, finding chinks in the armour. <i>"I think it can feel like a trap sometimes, because it's kind of like I don't know how to explain it. It's kind of like you can see the bad but you're still drawn in"</i>	10

Appendix 14: Table 1.0**Participants selected for interview**

Participant name (pseudonym)	Talia	Eva	Rosa	Brian	Hannah	Riana
Age range	18-24	18-24	18-24	18-24	18-24	18-24
Gender	F	F	F	M	F	F
Length of interview (minutes)	87	78	82	60	77	70

Table 1.0. General participant interview information

Appendix 15: Table 2.0: Table of group experiential themes and related subthemes.

GET 1: Smartphones Are Complex: You Can't Separate the Good from the Bad Subtheme 1a: Trapped by your smartphone Subtheme 1b: Addiction or dependency?
GET 2: It's the seeing it! Comparison to Visual Media, Insecurity Exacerbation and Identity Distress
GET 3: Revolutionising Communication and Relationships Subtheme 3a. Unrealistic social expectations Subtheme 3b: Tension in relationships
GET 4: Connection, Freedom and Learning: The Positives of Smartphone Use Subtheme 4a: Connecting with family and friends Subtheme 4b: My smartphone is my teacher
GET 5: What You Don't Know Really Does Hurt You Subtheme 5a: Learning the hard way: Developing protective awareness Subtheme 5b: Awareness alone is not enough

Table 2.0: Table of group experiential themes and related subthemes

Appendix 16: Ethical Approval Letter



Dear Anthony

Reference: ETH2122-1598

Project title: Doctoral Research Project

Start date: 7 Jun 2022

End date: 1 Oct 2023

I am writing to you to confirm that the research proposal detailed above has been granted formal approval from the Psychology low risk review. The Committee's response is based on the protocol described in the application form and supporting documentation. Approval has been given for the submitted application only and the research must be conducted accordingly. You are now free to start recruitment.

The approval was given with the following conditions:

- ...
- ...
- ...

Please ensure that you are familiar with [City's Framework for Good Practice in Research](#) and any appropriate Departmental/School guidelines, as well as applicable external relevant policies.

Please note the following:

Project amendments/extension

You will need to submit an amendment or request an extension if you wish to make any of the following changes to your research project:

- Change or add a new category of participants;
- Change or add researchers involved in the project, including PI and supervisor;
- Change to the sponsorship/collaboration;
- Add a new or change a territory for international projects;
- Change the procedures undertaken by participants, including any change relating to the safety or physical or mental integrity of research participants, or to the risk/benefit assessment for the project or collecting additional types of data from research participants;
- Change the design and/or methodology of the study, including changing or adding a new research method and/or research instrument;
- Change project documentation such as protocol, participant information sheets, consent forms, questionnaires, letters of invitation, information sheets for relatives or carers;



- Change to the insurance or indemnity arrangements for the project;
- Change the end date of the project.

Adverse events or untoward incidents

You will need to submit an Adverse Events or Untoward Incidents report in the event of any of the following:

- a) Adverse events
- b) Breaches of confidentiality
- c) Safeguarding issues relating to children or vulnerable adults
- d) Incidents that affect the personal safety of a participant or researcher

Issues a) and b) should be reported as soon as possible and no later than five days after the event. Issues c) and d) should be reported immediately. Where appropriate, the researcher should also report adverse events to other relevant institutions, such as the police or social services.

Should you have any further queries relating to this matter, please do not hesitate to contact me. On behalf of the Psychology low risk review, I do hope that the project meets with success.

Kind regards

Carla Willig

Psychology low risk review

Section C: Publishable piece

“Learning the hard way”: Young adult’s experiences of becoming aware of the relationship between their smartphone use and mental-wellbeing

5.1 Abstract

In recent years, there has been a surge of research interest on the impacts of smartphone/social media use on mental-wellbeing, particularly amongst younger demographics. However, little research has considered young adult’s perspective on this complex issue. This study focused on how young adults make sense of and experience their smartphone use as impacting their wellbeing. Data was gathered from six participants using semi-structured interviews and analysed using interpretative phenomenological analysis. Five main themes emerged from the data: 1. ‘Smartphones are complex: You can’t separate the good from the bad’, 2. ‘The impact of visual media and lack of context in a constructed reality: Social comparison, insecurities, and identity development’, 3. ‘Revolutionising communication and relationships’, 4. ‘The positives of smartphone use’, 5. ‘The role of user awareness on the relationship between smartphone use and wellbeing’. The focus of this article is theme 5. Participants felt that developing an awareness of the potential risks and benefits inherent to smartphones was essential to enable healthy use; however many participants felt awareness was very challenging to develop due to the complexity of smartphones, receiving no external guidance on the issue and using smartphones from a very young age. Implications for institutions, such as universities/health-services, and future research are discussed.

Keywords: Social-media, Smartphone use, mental-wellbeing, Awareness, Young Adulthood

5.2 Introduction

Since the iPhone debuted in 2007, smartphone use has become ubiquitous across the UK and the West, becoming increasingly integrated within our society and culture. In the UK the average adult spent 4-hours/day on their smartphone in 2021, when considering young adults (18-25yrs) in 2024, this is estimated to be closer to 6-8 hours a day (Statista, 2021). This dramatic change in our behaviour has created a flurry of research on the impact of smartphone use on wellbeing, particularly amongst young adults who are experiencing a recent crisis in mental-health, neatly correlating with the rise in smartphone and social media (SM) use (Haidt, 2024). There is debate amongst researchers concerning the extent to which smartphones impact wellbeing. Some researchers have uncovered positive results, finding smartphones help improve connections with

others, increase productivity, facilitate learning and provide entertainment (Kil et al., 2021). Many others have demonstrated a weak-positive correlation between increased smartphone use and decreased mental-wellbeing (Vahedi and Saiphoo, 2018), however, some studies dispute this e.g. Marciano et al. (2022) found an association between positive wellbeing and smartphone use and Kil et al. (2021) that found smartphone use was correlated with an increase in quality of life.

There is a somewhat clearer pathological relationship between problematic smartphone use (PSU), sometimes known as smartphone addiction, and mental-wellbeing. Meta-analyses by Elhai et al. (2017) and Yang et al. (2020) analysed 14 and 23 studies respectively. Both analyses found significant associations between PSU and depression, showing a moderate-weak effect, and anxiety, showing a weak effect.

The impact of social media (SM) on wellbeing is also an area of interest for researchers, being some of the most frequently used and emotive applications on smartphones. Much like smartphone use, SM studies are predominantly cross-sectional correlational in design and have produced inconsistent findings (Kross et al., 2021). A study by Grieve et al. (2013) on Australian students, found time on Facebook improved wellbeing through socially connecting with peers. However, a study on UK students found negative correlations between Facebook use with self-esteem and social adjustment (Kalipidou et al., 2011). Meta-analyses were conducted to try and elucidate the relationship, Kross et al. (2013) and Shakya and Christakis (2017) found weak-negative correlations between Facebook use and subjective wellbeing, however some of the studies analysed showed positive correlations.

With the relationship of smartphone/SM use and wellbeing still considered largely unclear, researchers have suggested methodological limitations such as overuse of cross-sectional correlational designs, lack of experimental designs and validity of quantitative measures. A study of 50,000 individuals examined ten commonly used surveys measuring Facebook use, finding these correlated only weakly with individuals' actual Facebook use (Ernala et al., 2020). A study by Billieux et al. (2015) on the smartphone addiction scale (SAS) (Kwon et al., 2013), the most commonly used measure of PSU/smartphone addiction, found that 18% of the SAS's highest scorers did not feel they were addicted to their smartphones and 55% of the lowest scorers, (i.e. not addicted) felt they were addicted.

Despite these limitations, some researchers like Kross et al. (2021) feel a more fundamental issue is at play. Smartphones/SM have become extremely complex, the great majority of research uses

broad, aggregate variables, that often focus on the quantity of use, e.g. Screentime, smartphone use, SM use, Facebook use, Instagram use (Yang et al., 2022). These aggregate measures are essentially grouping many different types of smartphone use and their associated behavioural and psychological processes into a single number. This deeply limits our understanding of the fine-grained details of use, but is also arguably a poor approach to understanding general trends. ‘Smartphone use’ encompasses a wide variety of behaviours, cognitions and emotional responses that have a variety of implications for wellbeing; aggregate variables may be inadvertently averaging these effects out, leading to only small or null effects (Kross et al., 2021).

Steele et al. (2020), Yang et al. (2022), and Kross et al. (2021) believe that only through uncovering the underlying psychological/behavioural processes that effect wellbeing, can a comprehensive understanding of the relationship emerge, or any development of targeted clinical intervention.

Quantitative research has taken some strides forward in refining quantitative variables to measure more specific behavioural and psychological processes. For instance, social comparison on SM has been associated with decreased feelings of wellbeing (Verduyn et al. 2020). Fear of missing out (FOMO) is another underlying psychological phenomenon explaining the relationship between Smartphone use and wellbeing. Tanhan et al. (2022) reviewed correlational studies on FOMO and SM use, finding FOMO was linked to chronic anxiety, depression and low self-esteem. Additionally, active engagement on SM was found to have a positive effect on wellbeing, whilst passively scrolling demonstrated a detrimental effect (Verduyn et al., 2022). Breaking down aggregate variables into their constituents is elucidating the nuances in the smartphone-wellbeing relationship.

However, Griffieon et al. (2021) argues a more in depth understanding is required, believing even quite basic detail on smartphone use is lacking; we still know remarkably little about what young adults are actually thinking, feeling or doing on their phones. Hence, whilst refining quantitative variables is proving fruitful, qualitative approaches should also be utilised to complement and contextualise quantitative findings through providing rich, detailed data on the complex individual experiences of use, helping to uncover the underlying psychological processes between smartphone use and wellbeing (Smith et al., 2021).

Although there is a paucity of qualitative studies, they have produced some important findings. Griffieon et al. (2021) studied the attitudes and experiences of participants towards their smartphones using focus groups. Through obtaining in-depth individual accounts, the authors

recognised participants used their smartphones very differently, engaging in a wide variety of smartphone uses and motivations. These findings strongly support the argument that aggregate variables such as a 'smartphone use' cannot be considered homogenous, potentially explaining inconsistent quantitative findings. Childs and Holland (2022) interviewed seven young adults in the UK, exploring how they shifted between smartphone use and face-to-face interactions, adding much needed context to smartphone's association with anxiety, often reported in quantitative research. Participants reported they struggled to navigate the new social pressures of constant communication, participants felt that they experienced an expectation from peers to be on their phones constantly, causing anxiety. Moreover, Harkin and Kuss (2020) interviewed 11 participants in a focus group, exploring the impact of using a smartphone. Supporting Griffieon's et al. (2021) study, they found that participants were not always fully aware of their own smartphone use behaviours, giving a false-sense of control. The authors note this as a potential limitation of self-report measures. These findings again, show a more complicated picture than quantitative studies depict. Participants experienced smartphone use as a double-edged sword, finding it valuable for making and maintaining relationships yet also feeling continuous pressure from constant connectivity, theoretically conceptualised as the freeing-enslaving paradox (Turkle, 2017).

Qualitative findings have provided some possible explanations for inconsistencies in quantitative research by providing further detail and contextual information that appears essential for comprehensive understanding. Additionally, qualitative research has the distinct advantage of giving the people who actually understand and experience these challenges a voice, allowing them to express their thoughts, feelings and insight. Of the limited pool of qualitative research, very little has investigated experiences of smartphone use specifically in relation to mental-wellbeing.

Thus, the aims of this research are to more deeply understand how young adults experience the complex and dynamic interplay between their smartphone use and wellbeing, including effects on their relationships, mental-health, identity and socio-cultural impacts. It is hoped that this research will provide much needed detail and context on the phenomenon that may augment, complement or challenge prior quantitative findings and potentially provide useful theoretical and/or clinical insight.

Research question: "How do young adults in the UK experience and make sense of the impact of smartphone use on their mental-wellbeing?"

5.3 Materials and methods

5.3.1 Participants

To be eligible for this study, participants needed to own a smartphone. Participants needed to be living in the UK, be able to speak, read and write in English comfortably, to have read the participant information sheet and signed both informed consent forms (one for screening, one for main study). Participant's smartphone use needed to be impacting their mental wellbeing currently, positively or negatively. Participants needed to be between 18-25-years-old, this demographic was selected because on average, they spend more time on their smartphones than other age-groups and their smartphone use is more strongly correlated with psychopathology and addictive/problematic use (Horwood et al., 2021). Moreover, this age group is going through an important social, cognitive and emotional developmental stage that can be affected by environmental factors such as smartphone use (Horwood et al., 2021).

To ensure participant wellbeing, participants could not be experiencing any 'moderate-severe' or 'severe' anxiety or low-mood at the time of the research. The GAD-7 (anxiety) and PHQ-8 (low-mood) questionnaires were used as screening tools. These eligibility requirements were needed to improve sample homogeneity, in line with interpretative phenomenological analysis' (IPA) recommendations, the chosen analytic strategy (Smith et al., 2021). In addition, these requirements were implemented for ethical reasons e.g. safeguarding wellbeing.

5.3.2 Recruitment Procedure and Screening

A purposive sampling method was employed. Participants were recruited using an advertisement flyer posted on SM (Instagram, Facebook, Twitter/X). The flyer was also posted to City university SM groups, counselling/clinical psychology internet forums and the author's professional/personal social groups.

Interested participants were sent the participant information sheet and invited to an initial screening call to check for eligibility. Eligible participants were sent the research study consent form to read and sign, a participant demographics form and interview arrangements. In total six participants were recruited who met eligibility criteria, 5 female, 1 male; participants were aged between 18-24 and currently lived in the UK.

5.3.3 Data collection method

IPA requires rich, textured data relating to personal experience. Thus, in depth, semi-structure interviews were chosen as an appropriate data collection method (Smith et al., 2021). All interviews took place over Zoom (City university account) to ensure participant safety during the Covid-19 pandemic. All interviews were conducted in private and confidential settings and took place without interruption. Participants were asked 9 open-ended questions relating to their smartphone use generally and in relation to their wellbeing and relationships. Interviews lasted between 60-87 minutes.

5.3.4 Transcription

All participant interviews were transcribed verbatim. Smith et al. (2021) suggests that non-verbal aspects of communication do not require careful transcription. However, meaningful non-verbal communication was included in parentheses such as pauses in speech, emotional tone and laughter.

5.4 Ethics

The study was approved by the City, University of London, Psychology ethics committee. This research adhered to the core principles of the BPS Code of Human Research Ethics (Oates et al., 2021). Although not needed, an interview distress protocol was in place: A modified distress protocol taken from 'Developing Distress Protocols for Research on Sensitive Topics' (Draucker et al., 2009). Participants who were not eligible for the research were signposted to support services/resources; all participants were offered support services/resources. Participants were made aware of confidentiality arrangements and that their data would be kept by City university for 10-years after collection as is university protocol. All identifiable participant data was anonymised using pseudonyms/redactions.

5.5 Analysis

The seven-part IPA strategy from Smith et al. (2021) was utilised. This strategy is a comprehensive and clearly structured approach to analysis, allowing others to closely follow the analytic processes. Giorgi (2011) has criticised IPA due to difficulties concerning replicability; they argue that clearly structured and demarcated steps such as Smith's et al. (2021) are required to address this limitation. The strategy first involved reading and re-reading the interview transcripts whilst listening to the audio-recordings to get a good sense of participant's subjective experience, initial notes are taken at this stage. These notes are then converted into more formal/meaningful statements which are then grouped together to form themes. This process is then repeated for every participant, their

individual themes are then compared and contrasted to establish patterns across all participant data sets until a final set of group themes emerges, which capture the most meaningful and salient aspects of participant's lived experience.

IPA is a qualitative approach that's primary focus is subjective experience and how individuals make sense of and ascribe meaning to those experiences. It is usually used to study experiences of significance for individuals (Smith et al., 2021). IPA is underpinned theoretically by three philosophical schools of thought – phenomenology, hermeneutics, and ideography (Pietkiewicz and Smith, 2014). IPA is heavily influenced by all three philosophies; thus, the approach is primarily concerned with detailed descriptions and interpretations of lived-experiences, what these mean to individuals and how they make sense of them within their individual and socio-cultural contexts (Pietkiewicz and Smith, 2014).

5.5.1 Results

The analysis produced five group experiential themes (main themes) and 9 subthemes relating to how participants experienced their smartphone use impacting their wellbeing, presented in the table 1.0. below:

GET 1: Smartphones are complex: You can't separate the good from the bad Subtheme 1a: Trapped by your smartphone. Subtheme 1b: Addiction and dependency
GET 2: The impact of visual media and lack of context in a constructed reality: Social comparison, insecurities, and identity development
GET 3: Revolutionising communication and relationships Subtheme 3a. The impact of new social expectations on wellbeing Subtheme 3b: Tension in relationships
Get 4: The positives of smartphone use Subtheme 4a: Connection to family and friends Subtheme 4b: Utility and development of new interests
GET 5: The role of user awareness on the relationship between smartphone use and wellbeing Subtheme 5a: Developing protective awareness: Learning the hard way. Subtheme 5b: Awareness alone is not enough.

Table 1.0: Table of group experiential themes and related subthemes.

The focus of this article is theme 5: The role of user awareness on the relationship between smartphone use and wellbeing. I have chosen to focus on this theme because of the significance many participants placed upon it, many reported the extent to which they were aware of their smartphone use had very significant implications on their wellbeing, regardless of the psychological mechanisms involved. Moreover, this was a theme in which many participants felt let down and unseen - they were not made aware (at all) of the risks of using a smartphone from any external source, feeling more should have been done to protect them. Thus, It feels important to let their feelings and opinions on the subject be heard.

5.5.2 Subtheme 5a: Developing protective awareness: Learning the hard way

Developing an awareness of the ways in which smartphone use affects wellbeing was described as a vital protective factor against the potential harms of smartphone use by all participants. This was an overarching theme connected to all other themes, as the extent to which participant's experienced positive or negative effects on their wellbeing was mediated by their awareness, i.e. knowing what types of smartphone use are beneficial or harmful, then modifying use patterns accordingly. However, participants faced a common problem in that developing and maintaining awareness was no straightforward process, particularly when first encountering smartphones, usually in their early/pre-adolescence. The complexity of smartphones, their subtle and obscure impacts, participant emotional reactivity and vulnerable age, made the development of awareness a slow and often painful process. Participants described being thrown into the complex world of smartphones/SM alone, without guidance. Their parents didn't understand it, institutions like tech companies, schools, universities and health-services did not provide any information or education relating to risks/benefits. Thus, vital protective awareness is "learned the hard way" as described by Hannah i.e., participants learn what aspects of smartphone use make them feel good or bad through trial and error, talking to peers/family and their own intuition. Many felt this was an unfair and unnecessary burden to be placed upon their younger adolescent selves; indeed, they still struggle to understand and manage the complex relationship between their smartphones and wellbeing as experienced adult smartphone users. Several participants, felt external guidance and education should be provided, feeling this could have saved much hardship and pain, some of which is still carried today.

Eva's description captures how difficult the development and maintenance of awareness can be on SM:

"I mean, I think I try and negate against some of the kind of worst aspects of it, sometimes successfully, sometimes less successfully but I try and be aware" ... "I just try and use it in a way that maximizes the better parts as much as I can but I do maintain that not having it at all would be better". (l.201, p.5).

After years on SM Eva still struggles to achieve a steady state of awareness that enables healthy use. Awareness appears difficult to maintain and elusive, implying there is a complexity and obscurity to the relationship between SM and wellbeing. Her description sounds more like something akin to damage control rather than a content relationship with SM, ultimately believing life would be better without it.

Hannah:

"And sometimes you forget (to be aware)" ... "you've got to be quite aware and strict with yourself" ... "What am I doing here? How did I get here? I think now more than ever, I'm so much more aware of that and I do do recognise like immediately when I'm like either looking at (harmful) content". (l.686,p.16)

Like Eva, it's clear from Hannah's description that she needs to put in constant effort to remain aware of the impacts of smartphone use on her wellbeing. The word 'strict' implies that using her smartphone in a healthy way goes against her natural use tendencies, it requires active effort and discipline to continuously reflect and remain aware. Unlike Eva, Hannah seems to maintain a level of awareness that enables her to recognise harm immediately. Below, she goes on to describe other ways she's developed an awareness of problematic use, such a questioning/reflecting with peers.

Hannah: *"I think yeah, just talking about it helps, and with my friends and stuff being like, wait, are you feeling like this too? Like, hold on, why are we why are we doing this?". (l.772, p.18)*

Brian has also struggled to remain aware:

*"you get that like reminder of your, your Screen Time on your phone, and then you're like, holy f**k! That's, sorry, so you're like, five hours a day on my smartphone! I didn't even, like how am I on my phone for five hours a day!?" ... "How is that, how is that possible!? And I think that's when you when you like reflect on it". (l.32, p.1)*

Brian's description illustrates his unawareness of the extent of his smartphone use, there was genuine shock in his voice during the description, he swears and stumbles over his words, conveying the utter disbelief he experienced. The measurement 'Screen Time' provided by some smartphones, is the closest thing Brian received to external guidance. Yet, this small spark triggered the recognition he was unhappy with his use, enabling deeper reflection and subsequent development of awareness. This experience is testament to how important even very limited education on smartphone use can be, individuals may not even be aware they're experiencing problematic use.

Like Brian, Riana also found the development of awareness elusive:

"but sometimes that awareness doesn't come right away, so you can again just get stuck feeling bad about yourself and not knowing exactly, because you've just seen some image that made you feel that way." (l.831, pg.20)

It seems understandable that Riana finds it difficult to remain aware of the impact of her smartphone, she will likely be viewing potentially thousands of images over multiple hours every day, the majority will likely have fairly subtle effects but may still have a powerful cumulative effect on her mood over time. With no prior education, this phenomenon may be hard to identify leading her to becoming 'stuck' in negative affect-states; unless she's able to maintain a more fine-tuned, stable awareness.

Rosa describes the importance of awareness in protecting her from body image/eating difficulties:

"I think that was one of the best things that I did for myself (clicking 'not interested' on Instagram content) because if there's ever something that makes me like return to how I felt before then I sort of red flag it in my brain and I'm instantly aware of it, like if there's a dieting video then I immediately just click not interested, because I'm sort of hyper-aware of not getting back into that sort of echo chamber of SM now". (l.1044, p.19/20)

The process Rosa is describing could be conceptualised as a form of worry/obsession, amplified through her interaction with SM images/videos and recommendations. Her worrying and obsessing became a maintenance factor for her anxiety, she learned through trial and error that she could in effect, let the worry go, by unfollowing pages, reducing her anxiety, described as 'one of the best

things I did for *myself*^p. This is not an easy concept to understand without guidance, especially for younger people still developing. Humans have a natural tendency to try and think/problem-solve their way around difficulties/threats, which can become problematic if this progresses to obsession/worry without action, serving to maintain the cycle. Once Rosa cultivated an awareness of this process, she was much better equipped to navigate SM more safely. Again, she learned the hard way, only managing to develop an awareness through her own intimacy with suffering over a period of years, causing lasting psychological damage, illustrated in the quote below. How much pain could have been avoided if she'd had education on this common problem before using SM?

Rosa: *"I'm still carrying a lot of the sort of things (body image difficulties/obsession with stomach appearance) that arose when I first started using SM which have sort of like continue to now."* (l.1015, p.19)

When describing the important yet challenging process of developing an awareness of the intricacies of the relationship between smartphone use and wellbeing, many participants felt that some form of collective dialogue/education on the subject would have been extremely helpful, as opposed to having to go it alone. There may also be an additional benefit of everybody receiving education as this may help to change social expectations/norms on Smartphones/SM, which formed part of many participants' problems.

Eva is referring to SM education:

"I think it should be in schools. I think a big effort needs to be made for people to take it seriously, and I think the problem with SM is there's such a generational gap" ... "I think a lot of people kind of believe that you don't understand until you're in it" (l.1053, p.23)

Eva implies SM's problems are ignored or misunderstood. Perhaps this is directly related to her second point, the generational gap. Those in relative positions of power who can implement change e.g. politicians, healthcare providers, teachers and parents are likely to be older and thus less likely to have experienced, and therefore understand the problems adolescents and young adults face; they're not 'in it'. This is an ever-present danger for younger demographic's due to the speed this technology develops.

Hannah experienced the 'generational gap' first-hand when using SM, there's a sense she had no one to turn to and longed for support and guidance but was unable to access it.

Hannah: *"your parents have no idea, your parents haven't been through that so they can't advise you."* (l.1222, p.29)

Talia also feels the issue needs more attention, worried about the impact of smartphone use on development, she views being younger as a vulnerability in this context.

Talia: *"you're at such a young age and you're very, developing and can be quite like impressionable by what you see because maybe you've not experienced life enough" ... "it's definitely something to be looked at for more early years" ... "like noticing what's positive about it for them and what's negative".* (l.1326, p.31)

Similarly, Hannah recognises the importance of education.

Hannah: *"I've grown up with SM's growing influencer culture, and I've had to kind of learn the hard way. Whereas going into that, knowing that it exists, and knowing what the problems are and how you can maybe positively like change these things for yourself and for the better of your well-being."* (l.1207, p.28).

Hannah reflects on her experience of developing awareness 'the hard way', there's a sense of resentment that this responsibility fell solely on her. Having now gained an understanding of the problems and benefits of SM, she reflects on how much easier things could have been with some relatively simple education, even 'knowing that (problems) exist' would have been useful, priming her to be aware of negative impacts, as well as more specific education/intervention to promote healthy use. Below, Hannah describes an exemplar of how important even basic information is.

Hannah: *"when I realised what Instagram was, that was like a switch for me" "you're like ah okay, people literally only put the good things on Instagram".* (l.1158, p.27)

The recognition that Instagram is generally an idealised representation of people's realities caused a sudden shift in Hannah's perspective and psychology. Having previously struggled with self-comparison on multiple fronts, the realisation her objects of comparison were likely idealised and

unrealistic, acted as an antidote. This is a clear example of the significance improved awareness can have on wellbeing, awareness that could so easily have been taught.

5.5.3 Subtheme 5b: Awareness alone is not enough

Although protective in many contexts, several participants felt awareness alone was not enough to negate negative impacts in all circumstances. Participants felt that 'irrational' and intense feelings interrupted their awareness and rational thinking. Some participant's described this as their brain not being adequately adapted for this new technology, e.g. having an awareness that images are edited or profiles idealised but being unable to see them as such in the moment due to the intense feelings they evoked, thus on the level of emotion, the content appears real.

Eva describes how automatic 'irrational' feelings can dictate thoughts and behaviour, overriding previously held awareness.

Eva: *"(On SM) People don't tend to show the real side, the well, the less aesthetically pleasing sides of their life. So yeah, it's kind of like everyone feels a bit shit, even though none of it's real and we kind of know that as well. That's I think what the hardest part is, it's not a lack of awareness of that, I think it's kind of deeper and it plays on kind of irrational feelings, and that's why it's quite hard to get yourself out of that headspace". (l.241, p.6)*

Referring to viewing edited/unrealistic images on SM, Eva explains how viewing these images can trigger insecurities through self-comparison, the knowledge that the object of comparison isn't 'real' doesn't help her as insecurities and emotions are generated automatically upon seeing the image, and subsequently influence thoughts and behaviour. In some sense it's unsurprising Eva experiences this response; it is only in the last couple of decades that any photographic image of a person has ever been created, that is not in fact real. Human brains may be poorly adapted to understand this phenomenon fully, whilst newer parts of the brain like the cortex can help provide a cognitive understanding, the older emotional parts of the brain, like the limbic system, respond to incoming sensory information on a more automatic and reductive level, thus, knowing an image is edited cognitively, doesn't necessarily translate into an equivalent emotional response.

Riana expresses similar sentiments to Eva when discussing SM:

“just as much as you know it's not reality, I think it's still something you're seeing out there and your brain automatically is like, well they, if they have that, yeah, you know, why do I not? You know, maybe I can have this by some reality?”. (l.1047,p.25)

She chooses the word ‘brain’ as opposed to a personal pronoun, indicative of a subconscious, automatic response, that can’t be helped. She goes on to describe how her emotional state generated upon seeing images on SM subsequently affects her thinking and inhibits previously held awareness.

Riana: *“you're kind of so overcome with that emotion that, I think emotions can be very, I mean, you don't kind of see the facts, then it's, you don't see it rationally, you're just very driven by feeling a certain way and thinking that's true. So, 100% I think your emotions very easily dictate which thoughts you hold on to, and how quickly you can get out of it (obsession/rumination).”* (l.1065, p.25)

Again, Riana implies the emotional part of her brain automatically believes a distorted reality based on distorted visual data. Riana is in essence, being tricked. There is also an element of inherent uncertainty relating to what is real or not that makes the phenomenon more challenging to untangle and thus more anxiety provoking – what aspects of people’s SM profiles are actually false? Which photos are edited? To what extent are people idealising their lives? There is no clear labelling, everything viewed has the potential to be real. This creates added uncertainty on a cognitive level as well as emotional, further paving the way for worry, obsession and self-comparison.

Rosa has experienced similar issues, upon viewing SM profiles her awareness is pushed into the subconscious, temporarily lost:

“it’s just very not representative of peoples’ real lives, you just post the best parts of it” ... “but it also creates this very like, like it’s like subconsciously I know it that’s only the best part, but sometimes that needs to get through because you can forget that.” (l.995, p19)

5.6 Discussion

Participants tried to make sense of the various ways their smartphone interactions affected their wellbeing, feeling being aware of the beneficial and detrimental aspects of use was essential to protect wellbeing and enable healthier use. Participants felt developing awareness was a challenging process due to the complexity of smartphones, their subtle and obscure effects, a lack of guidance/support, their emotional reactivity and their vulnerable age.

A novel finding of this research was the isolation participants felt in that the responsibility to navigate the complex risks and benefits of smartphone use fell solely upon them, when often beginning use in their early/pre-adolescence. They reported receiving no external guidance to promote safe smartphone/SM use, not from the tech companies, schools, universities, teachers, parents, politicians or health-services. Some participants reasoned this was due to big-tech companies putting their business ahead of user well-being, and a generational divide, i.e. parents, teachers and institutions being unaware of the inherent risks, having not grown up with the technology. There was a sense participants felt alone and abandoned.

Participants reported that they would slowly develop awareness themselves often through a continued intimacy with suffering until they understood the subtle causal links. One participant referred to this as 'learning the hard way', feeling external guidance would be far more effective. Participants gave examples of how even relatively simple pieces of information could make a significant difference to wellbeing, e.g. being made aware of their ScreenTime, understanding that SM profiles are idealised/perfected, understating there's a link between body-image/eating disorders and SM, and understanding that if certain content on SM is causing uncontrollable worry, it may be advisable to unfollow/resist that content. Indeed, prior research has shown individuals with a ruminative/worrisome cognitive-style are at increased risk of developing SM/internet addiction and associated psychopathology (Hou et al., 2019).

For such a prominent theme in this study, there is remarkably little research on awareness. A study by Sela et al. (2022) discusses aware vs non-aware use of smartphones, but this relates to using a smartphone intentionally or unintentionally, a different construct to establishing a general awareness of the common beneficial and detrimental uses/psychological processes.

Mindfulness is a related, more frequently studied variable with sub-factors' 'attention and awareness' and 'acting with awareness', which correlate negatively with PSU/smartphone addiction

(Owen et al., 2019). Elhai et al. (2018) found similar correlations and suggested mindful awareness has potential to be an effective intervention for PSU. However, this refers to a non-specific, trait awareness/mindfulness as opposed to intentionally being made aware of common problematic/beneficial use patterns.

Participants in this study desired something closer to a preventative psychoeducation program on the risks and benefits of smartphone/SM use to create a more specific, relevant form of awareness; several felt this should be a part of school education or societal dialogue but remains unaddressed due to a culture of denial, a generational-divide and tech-industry interests.

Research to date focuses almost exclusively on reactive intervention (once a problem has arisen) rather than prevention, shown in Augner et al's. (2022) meta-analysis of interventions. This may be due to the attempted conceptualisation of the problem as a diagnosable disorder, 'smartphone/SM addiction', rather than/in addition to, a more general public-health concern. Some studies have looked at different approaches aimed at prevention e.g. Hou et al (2019), studied interventions designed to help participants reflect on the negative aspects of use, however this utilised self-reflection, as opposed to external education.

Perhaps the most closely related variable to awareness is 'social media literacy', an individual's technical, cognitive and social-emotional abilities that enable them to navigate SM effectively, e.g., one's critical-thinking. This research is still very much in its infancy, the definition of SM literacy is still developing (Polanco-Levican and Salvo-Garrido, 2022). A literature review by Polanco-Levican and Salvo-Garrido (2022) reported that improved SM literacy can help users discern what aspects of SM can be harmful e.g. understanding SM's positivity bias or what information is likely to be 'fake news'. Although there is currently no consensus on how to operationalise or define SM literacy, the authors believe it to be a promising preventative and protective strategy against the risks inherent to SM use.

This study supports Polanco-Levican and Salvo-Garrido's (2022) claims, with many participants reporting the crucial role of awareness in enabling a healthier relationship with their smartphones/SM.

Moreover, a handful of experimental studies have been conducted investigating SM literacy and body-image difficulties, the focus of SM literacy research, with promising results. A randomised control trial (RCT) on adolescents by Bell et al. (2021) found that a one-hour intervention relating to

challenging SM body-image ideals and image-credibility, led to increased body satisfaction after intervention and at 8-week follow-up compared with the control. A similar RCT by Gordon et al. (2020) found symptoms of low mood and restrictive diets decreased in the intervention compared with the control 6-months after intervention.

The current study adds support and contextual information to the aforementioned SM literacy research by providing personal accounts of how awareness, similar to SM literacy, improved participant ability to use SM platforms more safely. Additionally, it's provided novel empirical findings on how awareness is helpful in many other aspects of SM interaction, outside of body-image. For example, recognising misinterpretations of photos of peers causing FOMO, patterns of obsession/worry and subsequently unfollowing triggering content, recognising signs of addiction using screentime and utilisation of the positive aspects of SM use.

Although participants felt awareness was a vital protective factor against the risks of smartphone/SM use, several participants felt awareness alone was not enough. A novel finding of this research was participant accounts that acute negative-emotional reactivity upon viewing visual media, impeded their ability to remain aware of the realities of smartphones/SM. This took the form of seeing an image on SM and comparing oneself; despite holding the awareness that these images were likely edited/idealised on a cognitive level, intense emotional reactions were still automatically generated, influencing subsequent thinking, overpowering awareness. The same problem was reported when seeing images with no surrounding context of peers engaged in unknown social activities (FOMO). Seeing these images created immediate feelings of envy, rejection and anxiety, which would subsequently shape self-critical narratives to (inaccurately) explain the circumstance e.g. my friends don't value me, what did I do wrong?

The cognitive-emotional dissonance described by participants supports neurobiological theory on cognition-emotion interaction, put forward by Cohen (2005). Cohen (2005) theorises different parts of the brain sometimes come into conflict, favouring different evaluations of identical phenomena due their evolutionary function. He states old-brain mechanisms in the limbic system involved in emotional reactivity/processing often alter decision-making in a sub-optimal manner in modern-day contexts, despite being useful in other circumstances; this part of the brain tends to be immediate in response. The neocortex, a newer part of the brain, is also involved in decision-making as well as planning and reasoning (Cohen, 2005). The neocortex may provide adequate reasoning as to why it's not sensible to self-compare to a commuter-edited image but the limbic system may automatically

register this as a threat to social-status. In essence, this older part of the brain believes the image, coming into conflict with the neocortex, which may not. Indeed, participants mentioned feeling as if they weren't 'designed' to view images in this way, or that they would 'automatically believe' images or suddenly 'forget to be aware', seemingly adding support to Cohen's theory.

Furthermore, there is the additional problem of cognitive uncertainty surrounding images on SM, users do not know the context of images, or to what extent images have been selected or edited, in theory they could be completely real. In reality this is not the case, but the uncertainty behind image reality may create further anxiety and worry due to an inability to tolerate uncertainty (Dugas et al., 2007) e.g., Why did everyone meet up without me? Is that photo realistic?

5.7 Considerations for institutions and future research

This study has provided novel findings on the intricacies of smartphone/SM use and the potential underlying psychological and behavioural processes that impact wellbeing. Findings from this study may be of use to smartphone owners, parents, teachers and institutions such as health or educational services, through highlighting the valuable role of awareness in protecting against the harms of smartphones/SM and enabling healthier use.

Future research could further investigate the role of awareness in protecting against the harms of smartphones and promoting healthy use. Participants felt an awareness of the common positive and negative impacts of smartphone use was crucial to their wellbeing but very difficult to develop. Findings from this study and others like Yang's et al. (2022) and the aforementioned research on SM literacy, could form the rationale for experimental studies. For example, designing a psychoeducation intervention on the most salient positive and negative aspects (and associated psychological processes) of smartphone use to improve user-awareness and in-turn, potentially mental-wellbeing. Many participants felt they would have greatly benefitted from external guidance, particularly when they first started using smartphones in early/pre-adolescence, completely unaware of its apparently inherent risks. Participants received no external guidance on this issue, some felt society didn't understand or was in denial of the problems young people faced in relation to this technology. It would be advisable to receive input from young adults/adolescents in the development of any psychoeducation, who understand contemporary smartphone/SM culture and it's nuanced positive and negative effects.

However, participants also reported awareness alone was not useful in all circumstances e.g. when overwhelmed by intense, automatic emotional-reactivity. Thus, another potential area of research could be emotion-regulation, as suggested by Griffieon et al. (2021). Emotion-regulation strategies like mindfulness and self-compassion could be used to prevent worry, obsession, and critical self-narratives, often cited in this study as being triggered by acute emotional reactivity upon seeing an upsetting image on SM. Emotion-regulation in relation to smartphone use may be a promising area of future research.

Finally, there is a paucity of qualitative research on smartphone/SM use, particularly in relation to young adult's mental-wellbeing. More qualitative research on the subject may be helpful to further contextualise, complement and challenge previous findings and highlight new areas of potential interest. Importantly, qualitative research also gives a voice to young adults, allowing them to express what they feel is important in relation to a problem that disproportionately affects their demographic and one which they currently feel they have little power to change.

5.8 Acknowledgments

Not applicable

5.9 Funding details

Not applicable

5.10 Declaration of interests

This study gained ethical approval from the City, University of London ethics committee, application no. ETH2122-1598. This study adhered to the BPS code of human research ethics.

References

- Augner, C., Vlasak, T., Aichhorn, W., & Barth, A. (2022). Tackling the 'digital pandemic': The effectiveness of psychological intervention strategies in problematic Internet and smartphone use—A meta-analysis. *Australian & New Zealand Journal of Psychiatry*, 56(3), 219-229.
- Bell, B. T., Taylor, C., Paddock, D., & Bates, A. (2022). Digital Bodies: A controlled evaluation of a brief classroom-based intervention for reducing negative body image among adolescents in the digital age. *British Journal of Educational Psychology*, 92(1), 280-298.
- Billieux, J., Maurage, P., Lopez-Fernandez, O., Kuss, D. J., & Griffiths, M. D. (2015). Can disordered mobile phone use be considered a behavioral addiction? An update on current evidence and a comprehensive model for future research. *Current Addiction Reports*, 2(2), 156-162.
- Childs, C., & Holland, F. (2022). Young peoples' lived experiences of shifts between face-to-face and smartphone interactions: an interpretative phenomenological analysis. *Journal of Youth Studies*, 1-16.
- Cohen, J. D. (2005). The vulcanization of the human brain: A neural perspective on interactions between cognition and emotion. *Journal of Economic Perspectives*, 19(4), 3-24.
- Draucker, C. B., Martsof, D. S., & Poole, C. (2009). Developing distress protocols for research on sensitive topics. *Archives of Psychiatric Nursing*, 23(5), 343-350.
- Dugas, M. J., Savard, P., Gaudet, A., Turcotte, J., Laugesen, N., Robichaud, M., Francis, K., & Koerner, N. (2007). Can the components of a cognitive model predict the severity of generalized anxiety disorder? *Behavior Therapy*, 38(2), 169-178.
- Elhai, J. D., Dvorak, R. D., Levine, J. C., & Hall, B. J. (2017). Problematic smartphone use: A conceptual overview and systematic review of relations with anxiety and depression psychopathology. *Journal of Affective Disorders*, 207, 251-259.

- Elhai, J. D., Levine, J. C., O'Brien, K. D., & Armour, C. (2018). Distress tolerance and mindfulness mediate relations between depression and anxiety sensitivity with problematic smartphone use. *Computers in Human Behavior, 84*, 477-484.
- Ernala, S. K., Burke, M., Leavitt, A., & Ellison, N. B. (2020). How well do people report time spent on Facebook? An evaluation of established survey questions with recommendations. Paper presented at the *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, 1-14.
- Giorgi, A. (2010). Phenomenology and the practice of science. *Existential Analysis: Journal of the Society for Existential Analysis, 21*(1)
- Gordon, C. S., Rodgers, R. F., Slater, A. E., McLean, S. A., Jarman, H. K., & Paxton, S. J. (2020). A cluster randomized controlled trial of the SoMe social media literacy body image and wellbeing program for adolescent boys and girls: Study protocol. *Body Image, 33*, 27-37.
- Grieve, R., Indian, M., Witteveen, K., Tolan, G. A., & Marrington, J. (2013). Face-to-face or Facebook: Can social connectedness be derived online? *Computers in Human Behavior, 29*(3), 604-609.
- Griffioen, N., Scholten, H., Lichtwarck-Aschoff, A., Van Rooij, M., & Granic, I. (2021). Everyone does it—differently: A window into emerging adults' smartphone use. *Humanities and Social Sciences Communications, 8*(1), 1-11.
- Haidt, J. (2024). *The anxious generation: How the great rewiring of childhood is causing an epidemic of mental illness*. Random House.
- Harkin, L. J., & Kuss, D. (2021). "My smartphone is an extension of myself": A holistic qualitative exploration of the impact of using a smartphone. *Psychology of Popular Media, 10*(1), 28.

- Horwood, S., Anglim, J., & Mallawaarachchi, S. R. (2021). Problematic smartphone use in a large nationally representative sample: Age, reporting biases, and technology concerns. *Computers in Human Behavior*, 122, 106848.
- Hou, Y., Xiong, D., Jiang, T., Song, L., & Wang, Q. (2019). Social media addiction: Its impact, mediation, and intervention. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 13(1)
- Kalpidou, M., Costin, D., & Morris, J. (2011). The relationship between Facebook and the well-being of undergraduate college students. *CyberPsychology, Behavior, and Social Networking*, 14(4), 183-189.
- Kil, N., Kim, J., McDaniel, J. T., Kim, J., & Kensinger, K. (2021). Examining associations between smartphone use, smartphone addiction, and mental health outcomes: A cross-sectional study of college students. *Health Promotion Perspectives*, 11(1), 36.
- Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D. S., Lin, N., Shablack, H., Jonides, J., & Ybarra, O. (2013). Facebook use predicts declines in subjective well-being in young adults. *PloS One*, 8(8), e69841.
- Kross, E., Verduyn, P., Sheppes, G., Costello, C. K., Jonides, J., & Ybarra, O. (2021). Social media and well-being: Pitfalls, progress, and next steps. *Trends in Cognitive Sciences*, 25(1), 55-66.
- Larkin, M., Flowers, P., & Smith, J. A. (2021). Interpretative phenomenological analysis: Theory, method and research.
- Marciano, L., Driver, C. C., Schulz, P. J., & Camerini, A. (2022). Dynamics of adolescents' smartphone use and well-being are positive but ephemeral. *Scientific Reports*, 12(1), 1316.
- Oates, J., Carpenter, D., Fisher, M., Goodson, S., Hannah, B., Kwiatowski, R., Prutton, K., Reeves, D., & Wainwright, T. (2021). BPS code of human research ethics. Paper presented at the

- Owen, B., Heisterkamp, B., Halfmann, A., & Vorderer, P. (2018). Trait mindfulness and problematic smartphone use. *Empirical Studies of Contemplative Practices*, , 181-205.
- Pietkiewicz, I., & Smith, J. A. (2014). A practical guide to using interpretative phenomenological analysis in qualitative research psychology. *Psychological Journal*, 20(1), 7-14.
- Polanco-Levicán, K., & Salvo-Garrido, S. (2022). Understanding social media literacy: A systematic review of the concept and its competences. *International Journal of Environmental Research and Public Health*, 19(14), 8807.
- Sela, A., Rozenboim, N., & Ben-Gal, H. C. (2022). Smartphone use behavior and quality of life: What is the role of awareness? *PloS One*, 17(3), e0260637.
- Shakya, H. B., & Christakis, N. A. (2017). Association of Facebook use with compromised well-being: A longitudinal study. *American Journal of Epidemiology*, 185(3), 203-211.
- Sherry Turkle. (2017). *Alone together : Why we expect more from technology and less from each other.* . Hachette: UK.
- Statista. (2021). Smartphone ownership penetration in the United Kingdom (UK) from 2012 to 2021, by age group. Retrieved from:
<https://www.statista.com/statistics/367857/smartphone-penetration-in-the-united-kingdomuk/#:~:text=In%202021%2C%2094.6%20percent%20of,%2D%20to%2044%20year%20olds>
- Steele, R. G., Hall, J. A., & Christofferson, J. L. (2020). Conceptualizing digital stress in adolescents and young adults: Toward the development of an empirically based model. *Clinical Child and Family Psychology Review*, 23(1), 15-26.
- Tanhan, F., Özok, H. İ, & Tayiz, V. (2022). Fear of missing out (FoMO): A current review. *Psikiyatride Guncel Yaklasimlar*, 14(1), 74-85.
- Vahedi, Z., & Saiphoo, A. (2018). The association between smartphone use, stress, and anxiety: A meta-analytic review. *Stress and Health*, 34(3), 347-358.

- Verduyn, P., Gugushvili, N., & Kross, E. (2022). Do social networking sites influence well-being? The extended active-passive model. *Current Directions in Psychological Science*, 31(1), 62-68.
- Verduyn, P., Gugushvili, N., Massar, K., Täht, K., & Kross, E. (2020). Social comparison on social networking sites. *Current Opinion in Psychology*, 36, 32-37.
- Yang, C., Holden, S. M., & Ariati, J. (2022). Social media and psychological well-being among youth: the multidimensional model of social media use. *Key Topics in Parenting and Behavior*, , 1-20.
- Yang, J., Fu, X., Liao, X., & Li, Y. (2020). Association of problematic smartphone use with poor sleep quality, depression, and anxiety: A systematic review and meta-analysis. *Psychiatry Research*, 284, 112686.

Appendix 17: Table 1.0.

GET 1: Smartphones are complex: You can't separate the good from the bad Subtheme 1a: Trapped by your smartphone. Subtheme 1b: Addiction and dependency
GET 2: The impact of visual media and lack of context in a constructed reality: Social comparison, insecurities, and Identity development
GET 3: Revolutionising communication and relationships Subtheme 3a. The impact of new social expectations on wellbeing Subtheme 3b: Tension in relationships
Get 4: The positives of smartphone use Subtheme 4a: Connection to family and friends Subtheme 4b: Utility and development of new interests
GET 5: The role of user awareness on the relationship between smartphone use and wellbeing Subtheme 5a: Developing protective awareness: Learning the hard way. Subtheme 5b: Awareness alone is not enough.

Table 1.0.: Table of group experiential themes and related subthemes.

Appendix 18: Journal of Youth Studies Instructions for Authors

Information taken from the Journal of Youth Studies website:

https://www.tandfonline.com/action/authorSubmission?journalCode=cjys20&show=instructions&_ga=2.136204465.183846046.1718124898-1870606862.1718124898#preparing-your-paper

Preparing Your Paper

Structure:

Your paper should be compiled in the following order: title page; abstract; keywords; main text introduction, materials and methods, results, discussion; acknowledgments; declaration of interest statement; references; appendices (as appropriate); table(s) with caption(s) (on individual pages); figures; figure captions (as a list).

Word Limits

Please include a word count for your paper.

A typical paper for this journal should be no more than 8000 words, inclusive of:

- Tables
- References
- Figure or table captions
- Footnotes
- Endnotes

Format-Free Submission

Authors may submit their paper in any scholarly format or layout. Manuscripts may be supplied as single or multiple files. These can be Word, rich text format (rtf), open document format (odt), PDF, or LaTeX files. Figures and tables can be placed within the text or submitted as separate documents. Figures should be of sufficient resolution to enable refereeing.

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- Spelling can be US or UK English so long as usage is consistent.

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4. Between 3 and 6 **keywords**. Read [making your article more discoverable](#), including information on choosing a title and search engine optimization.
5. **Funding details.** Please supply all details required by your funding and grant-awarding bodies as follows:
For single agency grants
This work was supported by the [Funding Agency] under Grant [number xxxx].
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This work was supported by the [Funding Agency #1] under Grant [number xxxx]; [Funding Agency #2] under Grant [number xxxx]; and [Funding Agency #3] under Grant [number xxxx].
6. **Disclosure statement.** This is to acknowledge any financial or non-financial interest that has arisen from the direct applications of your research. If there are no relevant competing interests to declare please state this within the article, for example: *The authors report there are no competing interests to declare*. [Further guidance on what is a conflict of interest and how to disclose it](#).
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